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Image Processing and Acquisition using Python - Ravishankar Chityala
2020-06-11

Image Processing and Acquisition using Python provides readers with a sound foundation in both image acquisition and image processing—one of the first books to integrate these topics together. By improving readers' knowledge of image acquisition techniques and corresponding image processing, the book will help them perform experiments more effectively and cost efficiently as well as analyze and measure more accurately. Long recognized as one of the easiest languages for non-programmers to learn, Python is used in a variety of practical examples. A refresher for more experienced readers, the first

part of the book presents an introduction to Python, Python modules, reading and writing images using Python, and an introduction to images. The second part discusses the basics of image processing, including pre/post processing using filters, segmentation, morphological operations, and measurements. The second part describes image acquisition using various modalities, such as x-ray, CT, MRI, light microscopy, and electron microscopy. These modalities encompass most of the common image acquisition methods currently used by researchers in academia and industry. Features Covers both the physical methods of obtaining images and the analytical processing methods required to understand the science behind the

images. Contains many examples, detailed derivations, and working Python examples of the techniques. Offers practical tips on image acquisition and processing. Includes numerous exercises to test the reader's skills in Python programming and image processing, with solutions to selected problems, example programs, and images available on the book's web page. New to this edition Machine learning has become an indispensable part of image processing and computer vision, so in this new edition two new chapters are included: one on neural networks and the other on convolutional neural networks. A new chapter on affine transform and many new algorithms. Updated Python code aligned to the latest version of modules.

Beginning Python - Peter C. Norton
2005-07-08

This tutorial offers readers a thorough introduction to programming in Python 2.4, the portable, interpreted, object-oriented programming language that combines power with clear syntax. Beginning programmers will quickly learn to develop robust, reliable, and reusable Python applications for Web development, scientific applications, and system tasks for users or administrators. Discusses the basics of installing Python as well as the new features of Python release 2.4, which make it easier for users to create scientific and Web applications. Features examples of various operating systems throughout the book, including Linux, Mac OS X/BSD, and Windows XP.

A Hands-On Introduction to Data Science - Chirag Shah 2020-04-02

An introductory textbook offering a low barrier entry to data science; the hands-on approach will appeal to students from a range of disciplines. *Mastering Python Networking* - Eric Chou 2020-01-30

New edition of the bestselling guide to mastering Python Networking, updated to Python 3 and including the latest on network data analysis, Cloud Networking, Ansible 2.8, and new libraries. Key Features: Explore the power of Python libraries to tackle difficult network problems efficiently and effectively, including pyATS, Nornir, and Ansible 2.8. Use Python and Ansible for DevOps, network device automation, DevOps, and software-defined networking. Become an expert in implementing advanced network-related tasks with Python 3. Book Description: Networks in your infrastructure set the foundation for how your application can be deployed, maintained, and serviced. Python is the ideal language for network engineers to explore tools that were previously available to systems engineers and application developers. In *Mastering Python Networking, Third edition*, you'll embark on a Python-based journey to transition from traditional network engineers to network developers ready for the next-generation of networks. This new edition is completely revised and updated to work with Python 3. In addition to new chapters on network data analysis with ELK stack (Elasticsearch, Logstash, Kibana, and Beats) and Azure Cloud Networking, it includes updates on using newer libraries such as pyATS and Nornir, as well as Ansible 2.8. Each chapter is updated with the latest libraries with working examples to ensure compatibility and understanding of the concepts. Starting with a basic overview of Python, the book teaches you how it can interact with both legacy and API-enabled network devices. You will learn to leverage high-level Python packages and frameworks to perform network automation tasks, monitoring, management, and enhanced network security followed by Azure and AWS

Cloud networking. Finally, you will use Jenkins for continuous integration as well as testing tools to verify your network. What you will learn Use Python libraries to interact with your network Integrate Ansible 2.8 using Python to control Cisco, Juniper, and Arista network devices Leverage existing Flask web frameworks to construct high-level APIs Learn how to build virtual networks in the AWS & Azure Cloud Learn how to use Elastic Stack for network data analysis Understand how Jenkins can be used to automatically deploy changes in your network Use PyTest and Unittest for Test-Driven Network Development in networking engineering with Python Who this book is for Mastering Python Networking, Third edition is for network engineers, developers, and SREs who want to use Python for network automation, programmability, and data analysis. Basic familiarity with Python programming and networking-related concepts such as Transmission Control Protocol/Internet Protocol (TCP/IP) will be useful.

Bloomberg Visual Guide to Candlestick Charting - Michael C. Thomsett
2012-02-07

The easy-to-use guide to interpreting candlestick charts and derivative markets Candlestick charts are an effective way of visualizing price movements and, due to the increased interest in the complex derivatives market, they are being used more and more widely. A combination of a line-chart and a bar-chart, where each bar represents the range of price movement over a given time interval, candlestick charts are most often used in technical analysis of equity and currency price patterns. A guide to the most used charts, The Bloomberg Visual Guide to Candlestick Charting is arranged in an easy-to-use manner, providing a quick

reference for those new to the field. Candlestick charts are formed with the help of the opening, high, low, and closing price of the day—if the opening price is above the closing price then a filled candlestick is drawn, and these charts are visual aids for decision making in forex, stock, commodities, and options trading. Contains alphabetical explanations of over 200 candlestick and related terms Includes daily charts of 50 companies, and six-month charts for comparative explanations of candlesticks with Western-style technical indicators Written by Michael C. Thomsett, author of over sixty books and hundreds of articles, including the bestselling Getting Started in Bonds, also published by Wiley Enhanced eBook editions offer video tutorials, test-yourself quizzes, and full-color/interactive charts and graphs, available for purchase separately. A practical and concise resource for anyone new to this way of representing derivatives, The Bloomberg Visual Guide to Candlestick Charting presents sometimes confusing concepts in a format that is easy to understand and digest.

Deep Learning - Josh Patterson
2017-07-28

Although interest in machine learning has reached a high point, lofty expectations often scuttle projects before they get very far. How can machine learning—especially deep neural networks—make a real difference in your organization? This hands-on guide not only provides the most practical information available on the subject, but also helps you get started building efficient deep learning networks. Authors Adam Gibson and Josh Patterson provide theory on deep learning before introducing their open-source DeepLearning4j (DL4J) library for developing production-class

workflows. Through real-world examples, you'll learn methods and strategies for training deep network architectures and running deep learning workflows on Spark and Hadoop with DL4J. Dive into machine learning concepts in general, as well as deep learning in particular. Understand how deep networks evolved from neural network fundamentals. Explore the major deep network architectures, including Convolutional and Recurrent. Learn how to map specific deep networks to the right problem. Walk through the fundamentals of tuning general neural networks and specific deep network architectures. Use vectorization techniques for different data types with DataVec, DL4J's workflow tool. Learn how to use DL4J natively on Spark and Hadoop.

Practical Machine Learning with Python - Dipanjan Sarkar 2017-12-20
Master the essential skills needed to recognize and solve complex problems with machine learning and deep learning. Using real-world examples that leverage the popular Python machine learning ecosystem, this book is your perfect companion for learning the art and science of machine learning to become a successful practitioner. The concepts, techniques, tools, frameworks, and methodologies used in this book will teach you how to think, design, build, and execute machine learning systems and projects successfully. Practical Machine Learning with Python follows a structured and comprehensive three-tiered approach packed with hands-on examples and code. Part 1 focuses on understanding machine learning concepts and tools. This includes machine learning basics with a broad overview of algorithms, techniques, concepts and applications, followed by a tour of the entire Python machine learning ecosystem. Brief

guides for useful machine learning tools, libraries and frameworks are also covered. Part 2 details standard machine learning pipelines, with an emphasis on data processing analysis, feature engineering, and modeling. You will learn how to process, wrangle, summarize and visualize data in its various forms. Feature engineering and selection methodologies will be covered in detail with real-world datasets followed by model building, tuning, interpretation and deployment. Part 3 explores multiple real-world case studies spanning diverse domains and industries like retail, transportation, movies, music, marketing, computer vision and finance. For each case study, you will learn the application of various machine learning techniques and methods. The hands-on examples will help you become familiar with state-of-the-art machine learning tools and techniques and understand what algorithms are best suited for any problem. Practical Machine Learning with Python will empower you to start solving your own problems with machine learning today! What You'll Learn
Execute end-to-end machine learning projects and systems
Implement hands-on examples with industry standard, open source, robust machine learning tools and frameworks
Review case studies depicting applications of machine learning and deep learning on diverse domains and industries
Apply a wide range of machine learning models including regression, classification, and clustering. Understand and apply the latest models and methodologies from deep learning including CNNs, RNNs, LSTMs and transfer learning.
Who This Book Is For
IT professionals, analysts, developers, data scientists, engineers, graduate students
Python Algorithms - Magnus Lie

Hetland 2011-02-27

Python Algorithms explains the Python approach to algorithm analysis and design. Written by Magnus Lie Hetland, author of Beginning Python, this book is sharply focused on classical algorithms, but it also gives a solid understanding of fundamental algorithmic problem-solving techniques. The book deals with some of the most important and challenging areas of programming and computer science, but in a highly pedagogic and readable manner. The book covers both algorithmic theory and programming practice, demonstrating how theory is reflected in real Python programs. Well-known algorithms and data structures that are built into the Python language are explained, and the user is shown how to implement and evaluate others himself.

Getting Started with LLVM Core Libraries - Bruno Cardoso Lopes
2014-08-26

This book is intended for enthusiasts, computer science students, and compiler engineers interested in learning about the LLVM framework. You need a background in C++ and, although not mandatory, should know at least some compiler theory. Whether you are a newcomer or a compiler expert, this book provides a practical introduction to LLVM and avoids complex scenarios. If you are interested enough and excited about this technology, then this book is definitely for you.

Interactive Data Visualization for the Web - Scott Murray 2013-03-15
Provides information on using D3, a JavaScript library, to create and publish interactive data visualization projects on the Web.

ArcPy and ArcGIS – Geospatial Analysis with Python - Silas Toms
2015-02-26

If you are a GIS student or professional who needs an

understanding of how to use ArcPy to reduce repetitive tasks and perform analysis faster, this book is for you. It is also a valuable book for Python programmers who want to understand how to automate geospatial analyses.

33 Guided Visualization Scripts to Create the Life of Your Dreams -
Louise Stapely 2014-08-27

Do you have enough money in your bank account? Are you head over heels in love with your partner? Are you surrounded by loving, caring friendships? Do you love your job? Do you have a close, loving relationship with your family? Are you driving the car of your dreams? Do you have a great relationship with your children? Are you healthy? When on vacation, do you stay in the top, most luxurious hotels in the world? Do you have peace of mind? Do you live in your dream house? Are you a confident, happy person? Do you have your own successful, thriving business? If you answered Yes to the above questions, then congratulations, you have mastered the art of visualization, whether consciously or unconsciously. You are aware of how powerful this technique can be. You know with 100% certainty that you can have and achieve ANYTHING your heart desires. You have mastered the art of mind power, and truly live the life of your dreams. You desire, you visualize, and you manifest, each and every time. If, on the other hand, you answered No to any of the above questions, then I urge you to learn everything you possibly can about visualization. Learn how it can completely transform your life. In this book, 33 Guided Visualization Scripts to Create the Life of Your Dreams, you will learn what steps to take in order to visualize correctly. There are 33 scripts provided, divided into financial abundance, career, family,

relationships, love, health, peace of mind, and addictions. Each script will show you how to engage your senses to boost results and manifest successfully. It doesn't matter how much you currently have in the bank, it doesn't matter if you are in debt up to your eyeballs, it doesn't matter if you feel you will never meet the love of your life, it doesn't matter if you hate your job and feel there is no way out. I promise you here and now, there is a way out. You deserve to have everything your heart desires. Happiness, success, perfect health, loving relationships, financial abundance, and peace of mind are your birthright. And they are there for the taking. Through positive, consistent visualization, your life will change. It will become the life you have always longed for; always dreamed about. There are no limitations with what you can have, achieve or be. Any limitations you feel there are, are only in your mind, and can be eradicated, SHOULD be eradicated. The sky is the limit. Make a promise to yourself that today, from this very moment, is the first day on your journey to total transformation. No more procrastination, no more 'starting on Monday', no more 'I'm too busy.' The time is now. Allow magic and miracles into your life.

Software Studies - Matthew Fuller
2008

This collection of short expository, critical and speculative texts offers a field guide to the cultural, political, social and aesthetic impact of software. Experts from a range of disciplines each take a key topic in software and the understanding of software, such as algorithms and logical structures.

Programming Interactivity - Joshua Noble 2009-07-21

Make cool stuff. If you're a designer

or artist without a lot of programming experience, this book will teach you to work with 2D and 3D graphics, sound, physical interaction, and electronic circuitry to create all sorts of interesting and compelling experiences -- online and off. Programming Interactivity explains programming and electrical engineering basics, and introduces three freely available tools created specifically for artists and designers: Processing, a Java-based programming language and environment for building projects on the desktop, Web, or mobile phones Arduino, a system that integrates a microcomputer prototyping board, IDE, and programming language for creating your own hardware and controls OpenFrameworks, a coding framework simplified for designers and artists, using the powerful C++ programming language BTW, you don't have to wait until you finish the book to actually make something. You'll get working code samples you can use right away, along with the background and technical information you need to design, program, build, and troubleshoot your own projects. The cutting edge design techniques and discussions with leading artists and designers will give you the tools and inspiration to let your imagination take flight.

Fundamentals of Java - Kenneth Alfred Lambert 2006

Accompanying disk contains instructor resources, lesson plans, presentation files, test bank, solutions, and more.

Android Programming - Bill Phillips
2015-08-01

Android Programming: The Big Nerd Ranch Guide is an introductory Android book for programmers with Java experience. Based on Big Nerd Ranch's popular Android Bootcamp course, this guide will lead you through the wilderness using hands-on

example apps combined with clear explanations of key concepts and APIs. This book focuses on practical techniques for developing apps compatible with Android 4.1 (Jelly Bean) and up, including coverage of Lollipop and material design. Write and run code every step of the way, creating apps that integrate with other Android apps, download and display pictures from the web, play sounds, and more. Each chapter and app has been designed and tested to provide the knowledge and experience you need to get started in Android development. Big Nerd Ranch specializes in developing and designing innovative applications for clients around the world. Our experts teach others through our books, bootcamps, and onsite training. Whether it's Android, iOS, Ruby and Ruby on Rails, Cocoa, Mac OS X, JavaScript, HTML5 or UX/UI, we've got you covered. The Android team is constantly improving and updating Android Studio and other tools. As a result, some of the instructions we provide in the book are no longer correct. You can find an addendum addressing breaking changes at: <https://github.com/bignerdranch/AndroidCourseResources/raw/master/2ndEdition/Errata/2eAddendum.pdf>.

Artificial Intelligence and Games - Georgios N. Yannakakis 2018-02-17
This is the first textbook dedicated to explaining how artificial intelligence (AI) techniques can be used in and for games. After introductory chapters that explain the background and key techniques in AI and games, the authors explain how to use AI to play games, to generate content for games and to model players. The book will be suitable for undergraduate and graduate courses in games, artificial intelligence, design, human-computer interaction, and computational intelligence, and also for self-study

by industrial game developers and practitioners. The authors have developed a website (<http://www.gameaibook.org>) that complements the material covered in the book with up-to-date exercises, lecture slides and reading.

Natural Language Processing with Python - Steven Bird 2009-06-12
This book offers a highly accessible introduction to natural language processing, the field that supports a variety of language technologies, from predictive text and email filtering to automatic summarization and translation. With it, you'll learn how to write Python programs that work with large collections of unstructured text. You'll access richly annotated datasets using a comprehensive range of linguistic data structures, and you'll understand the main algorithms for analyzing the content and structure of written communication. Packed with examples and exercises, Natural Language Processing with Python will help you: Extract information from unstructured text, either to guess the topic or identify "named entities" Analyze linguistic structure in text, including parsing and semantic analysis Access popular linguistic databases, including WordNet and treebanks Integrate techniques drawn from fields as diverse as linguistics and artificial intelligence This book will help you gain practical skills in natural language processing using the Python programming language and the Natural Language Toolkit (NLTK) open source library. If you're interested in developing web applications, analyzing multilingual news sources, or documenting endangered languages - - or if you're simply curious to have a programmer's perspective on how human language works -- you'll find Natural Language Processing with Python both fascinating and immensely

useful.

Python Algorithms - Magnus Lie Hetland 2014-09-17

Python Algorithms, Second Edition explains the Python approach to algorithm analysis and design. Written by Magnus Lie Hetland, author of Beginning Python, this book is sharply focused on classical algorithms, but it also gives a solid understanding of fundamental algorithmic problem-solving techniques. The book deals with some of the most important and challenging areas of programming and computer science in a highly readable manner. It covers both algorithmic theory and programming practice, demonstrating how theory is reflected in real Python programs. Well-known algorithms and data structures that are built into the Python language are explained, and the user is shown how to implement and evaluate others.

Introduction to Python Programming - Gowrishankar S 2018-12-07

Introduction to Python Programming is written for students who are beginners in the field of computer programming. This book presents an intuitive approach to the concepts of Python Programming for students. This book differs from traditional texts not only in its philosophy but also in its overall focus, level of activities, development of topics, and attention to programming details. The contents of the book are chosen with utmost care after analyzing the syllabus for Python course prescribed by various top universities in USA, Europe, and Asia. Since the prerequisite know-how varies significantly from student to student, the book's overall overture addresses the challenges of teaching and learning of students which is fine-tuned by the authors' experience with large sections of students. This book uses natural language expressions instead of the

traditional shortened words of the programming world. This book has been written with the goal to provide students with a textbook that can be easily understood and to make a connection between what students are learning and how they may apply that knowledge. Features of this book This book does not assume any previous programming experience, although of course, any exposure to other programming languages is useful This book introduces all of the key concepts of Python programming language with helpful illustrations Programming examples are presented in a clear and consistent manner Each line of code is numbered and explained in detail Use of f-strings throughout the book Hundreds of real-world examples are included and they come from fields such as entertainment, sports, music and environmental studies Students can periodically check their progress with in-chapter quizzes that appear in all chapters

Pro Python System Administration - Rytis Sileika 2010-09-08

As time goes on, system administrators are presented with increasingly complicated challenges. In the early days, a team of engineers might have had to look after one or two systems. These days, one engineer can administer hundreds or thousands of systems. System administrators are gradually replacing their tools with more advanced and flexible ones. One of the choices is Python. Structurally, Python is a modern, high-level language with a very clean syntax. Python comes with many built-in libraries that can make automation tasks easier. It also has extensive set of third-party libraries and a very active development community. This flexibility makes Python a good choice for a wide variety of tasks, from prototyping science applications

to system maintenance and administration jobs. This book explains and shows how to apply Python scripting in practice. Unlike the majority of the Python books, it will show you how to approach and resolve real-world issues that most system administrators will come across in their careers. In this book, you will find several projects in the categories of network administration, web server administration, and monitoring and database management. In each project, we will define the problem, design the solution, and go through the more interesting implementation steps. Each project is accompanied with the source code of a fully working prototype, which you'll be able to use immediately or adapt to your requirements and environment.

Beginning Python Visualization - Shai Vaingast 2009-03-26

We are visual animals. But before we can see the world in its true splendor, our brains, just like our computers, have to sort and organize raw data, and then transform that data to produce new images of the world. *Beginning Python Visualization: Crafting Visual Transformation Scripts* discusses turning many types of small data sources into useful visual data. And, you will learn Python as part of the bargain.

Programming Robots with ROS - Morgan Quigley 2015-11-16

Chapter 3. Topics; Publishing to a Topic; Checking That Everything Works as Expected; Subscribing to a Topic; Checking That Everything Works as Expected; Latched Topics; Defining Your Own Message Types; Defining a New Message; Using Your New Message; When Should You Make a New Message Type?; Mixing Publishers and Subscribers; Summary; Chapter 4. Services; Defining a Service; Implementing a Service; Checking That

Everything Works as Expected; Other Ways of Returning Values from a Service; Using a Service; Checking That Everything Works as Expected; Other Ways to Call Services; Summary.

Visual Data Storytelling with Tableau - Lindy Ryan 2018-04-20

Tell Insightful, Actionable Business Stories with Tableau, the World's Leading Data Visualization Tool! *Visual Data Storytelling with Tableau* brings together knowledge, context, and hands-on skills for telling powerful, actionable data stories with Tableau. This full-color guide shows how to organize data and structure analysis with storytelling in mind, embrace exploration and visual discovery, and articulate findings with rich data, carefully curated visualizations, and skillfully crafted narrative. You don't need any visualization experience. Each chapter illuminates key aspects of design practice and data visualization, and guides you step-by-step through applying them in Tableau. Through realistic examples and classroom-tested exercises, Professor Lindy Ryan helps you use Tableau to analyze data, visualize it, and help people connect more intuitively and emotionally with it. Whether you're an analyst, executive, student, instructor, or journalist, you won't just master the tools: you'll learn to craft data stories that make an immediate impact--and inspire action. Learn how to:

- Craft more powerful stories by blending data science, genre, and visual design
- Ask the right questions upfront to plan data collection and analysis
- Build storyboards and choose charts based on your message and audience
- Direct audience attention to the points that matter most
- Showcase your data stories in high-impact presentations
- Integrate Tableau storytelling throughout your business communication
- Explore case

studies that show what to do--and what not to do • Discover visualization best practices, tricks, and hacks you can use with any tool • Includes coverage up through Tableau 10

Practical Programming - Paul Gries 2013

Previous edition: published as by Jennifer Campbell ... [et al]. 2009. Sage for Undergraduates - Gregory V. Bard 2015-02-16

As the open-source and free competitor to expensive software like MapleTM, Mathematica®, Magma, and MATLAB®, Sage offers anyone with access to a web browser the ability to use cutting-edge mathematical software and display his or her results for others, often with stunning graphics. This book is a gentle introduction to Sage for undergraduate students toward the end of Calculus II (single-variable integral calculus) or higher-level course work such as Multivariate Calculus, Differential Equations, Linear Algebra, or Math Modeling. The book assumes no background in computer science, but the reader who finishes the book will have learned about half of a first semester Computer Science I course, including large parts of the Python programming language. The audience of the book is not only math majors, but also physics, engineering, finance, statistics, chemistry, and computer science majors.

Learn Python 3 the Hard Way - Zed A. Shaw 2017-06-26

You Will Learn Python 3! Zed Shaw has perfected the world's best system for learning Python 3. Follow it and you will succeed—just like the millions of beginners Zed has taught to date! You bring the discipline, commitment, and persistence; the author supplies everything else. In *Learn Python 3 the Hard Way*, you'll learn Python by working through 52 brilliantly

crafted exercises. Read them. Type their code precisely. (No copying and pasting!) Fix your mistakes. Watch the programs run. As you do, you'll learn how a computer works; what good programs look like; and how to read, write, and think about code. Zed then teaches you even more in 5+ hours of video where he shows you how to break, fix, and debug your code—live, as he's doing the exercises. Install a complete Python environment Organize and write code Fix and break code Basic mathematics Variables Strings and text Interact with users Work with files Looping and logic Data structures using lists and dictionaries Program design Object-oriented programming Inheritance and composition Modules, classes, and objects Python packaging Automated testing Basic game development Basic web development It'll be hard at first. But soon, you'll just get it—and that will feel great! This course will reward you for every minute you put into it. Soon, you'll know one of the world's most powerful, popular programming languages. You'll be a Python programmer. This Book Is Perfect For Total beginners with zero programming experience Junior developers who know one or two languages Returning professionals who haven't written code in years Seasoned professionals looking for a fast, simple, crash course in Python 3

Feature Engineering for Machine Learning - Alice Zheng 2018-03-23

Feature engineering is a crucial step in the machine-learning pipeline, yet this topic is rarely examined on its own. With this practical book, you'll learn techniques for extracting and transforming features—the numeric representations of raw data—into formats for machine-learning models. Each chapter guides you through a single data problem, such as how to represent text or image data.

Together, these examples illustrate the main principles of feature engineering. Rather than simply teach these principles, authors Alice Zheng and Amanda Casari focus on practical application with exercises throughout the book. The closing chapter brings everything together by tackling a real-world, structured dataset with several feature-engineering techniques. Python packages including numpy, Pandas, Scikit-learn, and Matplotlib are used in code examples. You'll examine: Feature engineering for numeric data: filtering, binning, scaling, log transforms, and power transforms Natural text techniques: bag-of-words, n-grams, and phrase detection Frequency-based filtering and feature scaling for eliminating uninformative features Encoding techniques of categorical variables, including feature hashing and bin-counting Model-based feature engineering with principal component analysis The concept of model stacking, using k-means as a featurization technique Image feature extraction with manual and deep-learning techniques

Raspberry Pi Supercomputing and Scientific Programming - Ashwin Pajankar 2017-05-25

Build an inexpensive cluster of multiple Raspberry Pi computers and install all the required libraries to write parallel and scientific programs in Python 3. This book covers setting up your Raspberry Pis, installing the necessary software, and making a cluster of multiple Pis. Once the cluster is built, its power has to be exploited by means of programs to run on it. So, Raspberry Pi Supercomputing and Scientific Programming teaches you to code the cluster with the MPI4PY library of Python 3. Along the way, you will learn the concepts of the Message Passing Interface (MPI) standards and will explore the fundamentals of

parallel programming on your inexpensive cluster. This will make this book a great starting point for supercomputing enthusiasts who want to get started with parallel programming. The book finishes with details of symbolic mathematics and scientific and numerical programming in Python, using SymPy, SciPy, NumPy, and Matplotlib. You'll see how to process signals and images, carry out calculations using linear algebra, and visualize your results, all using Python code. With the power of a Raspberry Pi supercomputer at your fingertips, data-intensive scientific programming becomes a reality at home. What You Will Learn Discover the essentials of supercomputing Build a low-cost cluster of Raspberry Pis at home Harness the power of parallel programming and the Message Passing Interface (MPI) Use your Raspberry Pi for symbolic, numerical, and scientific programming Who This Book Is For Python 3 developers who seek the knowledge of parallel programming, Raspberry Pi enthusiasts, researchers, and the scientific Python community.

Data Visualization with Python and JavaScript - Kyran Dale 2016-06-30 Learn how to turn raw data into rich, interactive web visualizations with the powerful combination of Python and JavaScript. With this hands-on guide, author Kyran Dale teaches you how build a basic dataviz toolchain with best-of-breed Python and JavaScript libraries—including Scrapy, Matplotlib, Pandas, Flask, and D3—for crafting engaging, browser-based visualizations. As a working example, throughout the book Dale walks you through transforming Wikipedia's table-based list of Nobel Prize winners into an interactive visualization. You'll examine steps along the entire toolchain, from scraping, cleaning, exploring, and delivering data to building the

visualization with JavaScript's D3 library. If you're ready to create your own web-based data visualizations—and know either Python or JavaScript—this is the book for you. Learn how to manipulate data with Python Understand the commonalities between Python and JavaScript Extract information from websites by using Python's web-scraping tools, BeautifulSoup and Scrapy Clean and explore data with Python's Pandas, Matplotlib, and Numpy libraries Serve data and create RESTful web APIs with Python's Flask framework Create engaging, interactive web visualizations with JavaScript's D3 library

Splunk 7 Essentials, Third Edition -

J-P Contreras 2018-03-29

Transform machine data into powerful analytical intelligence using Splunk Key Features Analyze and visualize machine data to step into the world of Splunk! Leverage the exceptional analysis and visualization capabilities to make informed decisions for your business This easy-to-follow, practical book can be used by anyone - even if you have never managed data before Book Description Splunk is a search, reporting, and analytics software platform for machine data, which has an ever-growing market adoption rate. More organizations than ever are adopting Splunk to make informed decisions in areas such as IT operations, information security, and the Internet of Things. The first two chapters of the book will get you started with a simple Splunk installation and set up of a sample machine data generator, called Eventgen. After this, you will learn to create various reports, dashboards, and alerts. You will also explore Splunk's Pivot functionality to model data for business users. You will then have the opportunity to test-drive Splunk's powerful HTTP

Event Collector. After covering the core Splunk functionality, you'll be provided with some real-world best practices for using Splunk, and information on how to build upon what you've learned in this book.

Throughout the book, there will be additional comments and best practice recommendations from a member of the SplunkTrust Community, called "Tips from the Fez". What you will learn Install and configure Splunk for personal use Store event data in Splunk indexes, classify events into sources, and add data fields Learn essential Splunk Search Processing Language commands and best practices Create powerful real-time or user-input dashboards Be proactive by implementing alerts and scheduled reports Tips from the Fez: best practices using Splunk features and add-ons Understand security and deployment considerations for taking Splunk to an organizational level Who this book is for This book is for the beginners who want to get well versed in the services offered by Splunk 7. If you want to be a data/business analyst or want to be a system administrator, this book is what you want. No prior knowledge of Splunk is required.

Learning Analytics - Johann Ari Larusson 2014-07-04

In education today, technology alone doesn't always lead to immediate success for students or institutions. In order to gauge the efficacy of educational technology, we need ways to measure the efficacy of educational practices in their own right. Through a better understanding of how learning takes place, we may work toward establishing best practices for students, educators, and institutions. These goals can be accomplished with learning analytics. Learning Analytics: From Research to Practice updates this emerging field with the latest in theories,

findings, strategies, and tools from across education and technological disciplines. Guiding readers through preparation, design, and examples of implementation, this pioneering reference clarifies LA methods as not mere data collection but sophisticated, systems-based analysis with practical applicability inside the classroom and in the larger world. Case studies illustrate applications of LA throughout academic settings (e.g., intervention, advisement, technology design), and their resulting impact on pedagogy and learning. The goal is to bring greater efficiency and deeper engagement to individual students, learning communities, and educators, as chapters show diverse uses of learning analytics to:

- Enhance student and faculty performance.
- Improve student understanding of course material.
- Assess and attend to the needs of struggling learners.
- Improve accuracy in grading.
- Allow instructors to assess and develop their own strengths.
- Encourage more efficient use of resources at the institutional level.

Researchers and practitioners in educational technology, IT, and the learning sciences will hail the information in *Learning Analytics: From Research to Practice* as a springboard to new levels of student, instructor, and institutional success.

Software Testing and Analysis - Mauro Pezze 2008

Teaches readers how to test and analyze software to achieve an acceptable level of quality at an acceptable cost Readers will be able to minimize software failures, increase quality, and effectively manage costs Covers techniques that are suitable for near-term application, with sufficient technical background to indicate how and when to apply them Provides

balanced coverage of software testing & analysis approaches By incorporating modern topics and strategies, this book will be the standard software-testing textbook

Implementing Cryptography Using Python - Shannon Bray 2020-07-15

Learn to deploy proven cryptographic tools in your applications and services Cryptography is, quite simply, what makes security and privacy in the digital world possible. Tech professionals, including programmers, IT admins, and security analysts, need to understand how cryptography works to protect users, data, and assets. *Implementing Cryptography Using Python* will teach you the essentials, so you can apply proven cryptographic tools to secure your applications and systems. Because this book uses Python, an easily accessible language that has become one of the standards for cryptography implementation, you'll be able to quickly learn how to secure applications and data of all kinds. In this easy-to-read guide, well-known cybersecurity expert Shannon Bray walks you through creating secure communications in public channels using public-key cryptography. You'll also explore methods of authenticating messages to ensure that they haven't been tampered with in transit. Finally, you'll learn how to use digital signatures to let others verify the messages sent through your services. Learn how to implement proven cryptographic tools, using easy-to-understand examples written in Python Discover the history of cryptography and understand its critical importance in today's digital communication systems Work through real-world examples to understand the pros and cons of various authentication methods Protect your end-users and ensure that your applications and systems are using

up-to-date cryptography

Deep Learning for Time Series

Forecasting - Jason Brownlee

2018-08-30

Deep learning methods offer a lot of promise for time series forecasting, such as the automatic learning of temporal dependence and the automatic handling of temporal structures like trends and seasonality. With clear explanations, standard Python libraries, and step-by-step tutorial lessons you'll discover how to develop deep learning models for your own time series forecasting projects.

Beginning Python Visualization - Shai Vaingast 2014-08-28

We are visual animals. But before we can see the world in its true splendor, our brains, just like our computers, have to sort and organize raw data, and then transform that data to produce new images of the world. *Beginning Python Visualization: Crafting Visual Transformation Scripts*, Second Edition discusses turning many types of data sources, big and small, into useful visual data. And, you will learn Python as part of the bargain. In this second edition you'll learn about Spyder, which is a Python IDE with MATLAB®-like features. Here and throughout the book, you'll get detailed exposure to the growing IPython project for interactive visualization. In addition, you'll learn about the changes in NumPy and Scipy that have occurred since the first edition. Along the way, you'll get many pointers and a few visual examples. As part of this update, you'll learn about matplotlib in detail; this includes creating 3D graphs and using the basemap package that allows you to render geographical maps. Finally, you'll learn about image processing, annotating, and filtering, as well as how to make movies using Python. This includes learning how to edit/open

video files and how to create your own movie, all with Python scripts. Today's big data and computational scientists, financial analysts/engineers and web developers – like you – will find this updated book very relevant.

Data Science and Big Data Analytics - EMC Education Services 2015-01-05

Data Science and Big Data Analytics is about harnessing the power of data for new insights. The book covers the breadth of activities and methods and tools that Data Scientists use. The content focuses on concepts, principles and practical applications that are applicable to any industry and technology environment, and the learning is supported and explained with examples that you can replicate using open-source software. This book will help you: Become a contributor on a data science team Deploy a structured lifecycle approach to data analytics problems Apply appropriate analytic techniques and tools to analyzing big data Learn how to tell a compelling story with data to drive business action Prepare for EMC Proven Professional Data Science Certification Corresponding data sets are available from the book's page at Wiley which you can find on the Wiley site by searching for the ISBN 9781118876138. Get started discovering, analyzing, visualizing, and presenting data in a meaningful way today!

Data Analysis with Open Source Tools

- Philipp K. Janert 2010-11-11

Collecting data is relatively easy, but turning raw information into something useful requires that you know how to extract precisely what you need. With this insightful book, intermediate to experienced programmers interested in data analysis will learn techniques for working with data in a business environment. You'll learn how to look at data to discover what it contains,

how to capture those ideas in conceptual models, and then feed your understanding back into the organization through business plans, metrics dashboards, and other applications. Along the way, you'll experiment with concepts through hands-on workshops at the end of each chapter. Above all, you'll learn how to think about the results you want to achieve -- rather than rely on tools to think for you. Use graphics to describe data with one, two, or dozens of variables Develop conceptual models using back-of-the-envelope calculations, as well as scaling and probability arguments Mine data with computationally intensive methods such as simulation and clustering Make your conclusions understandable through reports, dashboards, and other metrics programs Understand financial calculations, including the time-value of money Use dimensionality reduction techniques or predictive analytics to conquer challenging data analysis situations Become familiar with different open source programming environments for data analysis "Finally, a concise reference for understanding how to conquer piles of data."--Austin King, Senior Web Developer, Mozilla "An indispensable text for aspiring data scientists."--Michael E. Driscoll, CEO/Founder, Dataspora

Fluorescence Microscopy - Ulrich Kubitscheck 2017-04-03

While there are many publications on the topic written by experts for experts, this text is specifically designed to allow advanced students and researchers with no background in physics to comprehend novel fluorescence microscopy techniques. This second edition features new chapters and a subsequent focus on super-resolution and single-molecule microscopy as well as an expanded introduction. Each chapter is written

by a renowned expert in the field, and has been thoroughly revised to reflect the developments in recent years.

Deep Learning with Python - Francois Chollet 2017-11-30

Summary Deep Learning with Python introduces the field of deep learning using the Python language and the powerful Keras library. Written by Keras creator and Google AI researcher François Chollet, this book builds your understanding through intuitive explanations and practical examples. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Machine learning has made remarkable progress in recent years. We went from near-unusable speech and image recognition, to near-human accuracy. We went from machines that couldn't beat a serious Go player, to defeating a world champion. Behind this progress is deep learning—a combination of engineering advances, best practices, and theory that enables a wealth of previously impossible smart applications. About the Book Deep Learning with Python introduces the field of deep learning using the Python language and the powerful Keras library. Written by Keras creator and Google AI researcher François Chollet, this book builds your understanding through intuitive explanations and practical examples. You'll explore challenging concepts and practice with applications in computer vision, natural-language processing, and generative models. By the time you finish, you'll have the knowledge and hands-on skills to apply deep learning in your own projects. What's Inside Deep learning from first principles Setting up your own deep-learning environment Image-classification models Deep learning for text and sequences Neural style

transfer, text generation, and image generation About the Reader Readers need intermediate Python skills. No previous experience with Keras, TensorFlow, or machine learning is required. About the Author François Chollet works on deep learning at Google in Mountain View, CA. He is the creator of the Keras deep-learning library, as well as a contributor to the TensorFlow machine-learning framework. He also does deep-learning research, with a focus on computer vision and the application of machine learning to formal reasoning. His papers have been published at major conferences in the field, including the Conference on Computer Vision and Pattern Recognition (CVPR), the

Conference and Workshop on Neural Information Processing Systems (NIPS), the International Conference on Learning Representations (ICLR), and others. Table of Contents PART 1 - FUNDAMENTALS OF DEEP LEARNING What is deep learning? Before we begin: the mathematical building blocks of neural networks Getting started with neural networks Fundamentals of machine learning PART 2 - DEEP LEARNING IN PRACTICE Deep learning for computer vision Deep learning for text and sequences Advanced deep-learning best practices Generative deep learning Conclusions appendix A - Installing Keras and its dependencies on Ubuntu appendix B - Running Jupyter notebooks on an EC2 GPU instance