Python Network Programming Cookbook Sarker Dr M O Faruque

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Ant Colony Optimization - Marco Dorigo 2004-06-04 An overview of the rapidly growing field of ant colony optimization that describes theoretical findings, the major algorithms, and current applications. The complex social behaviors of ants have been much studied by science, and computer scientists are now finding that these behavior patterns can provide models for solving difficult combinatorial optimization problems. The attempt to develop algorithms inspired by one aspect of ant behavior, the ability to find what computer scientists would call shortest

paths, has become the field of ant colony optimization (ACO), the most successful and widely recognized algorithmic technique based on ant behavior. This book presents an overview of this rapidly growing field, from its theoretical inception to practical applications, including descriptions of many available ACO algorithms and their uses. The book first describes the translation of observed ant behavior into working optimization algorithms. The ant colony metaheuristic is then introduced and viewed in the general context of combinatorial optimization. This is followed by a detailed description and guide to all major ACO algorithms and a report on current theoretical findings. The book surveys ACO applications now in use, including routing, assignment, scheduling, subset, machine learning, and bioinformatics problems. AntNet, an ACO algorithm designed for the network routing problem, is described in detail. The authors conclude by summarizing the progress in the field and outlining future research directions. Each chapter ends with bibliographic material, bullet points setting out important ideas covered in the chapter, and exercises. Ant Colony Optimization will be of interest to academic and industry researchers, graduate students, and practitioners who wish to learn how to implement ACO algorithms.

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

Professional CUDA C Programming - John Cheng 2014-09-09
Break into the powerful world of parallel GPU programming with this down-to-earth, practical guide Designed for professionals across multiple industrial sectors, Professional CUDA C Programming presents CUDA -- a parallel computing platform and programming model designed to ease the development of GPU programming -- fundamentals in an easy-to-follow format, and teaches readers how to think in parallel and implement parallel algorithms on GPUs. Each chapter covers a specific topic, and includes workable examples that demonstrate the development process, allowing readers to explore both the "hard" and "soft" aspects of GPU programming. Computing architectures are experiencing a fundamental shift toward scalable parallel computing motivated by application requirements in industry and science. This book demonstrates the challenges of efficiently utilizing compute resources at peak performance, presents modern techniques for tackling these challenges, while increasing accessibility for professionals who are not necessarily parallel programming experts. The CUDA programming model and tools empower developers to write high-performance applications on a scalable, parallel computing platform: the GPU. However, CUDA itself can be difficult to learn without extensive programming experience. Recognized CUDA authorities John Cheng, Max Grossman, and Ty McKercher guide readers through essential GPU programming skills and best practices in Professional CUDA C Programming, including: CUDA Programming Model GPU Execution Model GPU Memory

model Streams, Event and Concurrency Multi-GPU Programming CUDA Domain-Specific Libraries Profiling and Performance Tuning The book makes complex CUDA concepts easy to understand for anyone with knowledge of basic software development with exercises designed to be both readable and high-performance. For the professional seeking entrance to parallel computing and the high-performance computing community, Professional CUDA C Programming is an invaluable resource, with the most current information available on the market.
Text Analytics with Python - Dipanjan Sarkar 2016-11-30 Derive useful insights from your data using Python. You will learn both basic and advanced concepts, including text and language syntax, structure, and semantics. You will focus on algorithms and techniques, such as text classification, clustering, topic modeling, and text summarization. Text Analytics with Python teaches you the techniques related to natural language processing and text analytics, and you will gain the skills to know which technique is best suited to solve a particular problem. You will look at each technique and algorithm with both a bird's eye view to understand how it can be used as well as with a microscopic view to understand the mathematical concepts and to implement them to solve your own problems. What You Will Learn: Understand the major concepts and techniques of natural language processing (NLP) and text analytics, including syntax and structure Build a text classification system to categorize news articles, analyze app or game reviews using topic modeling and text summarization, and cluster popular movie synopses and analyze the sentiment of movie reviews Implement Python and popular open source libraries in NLP and text analytics, such as the natural language toolkit (nltk), gensim, scikit-learn, spaCy and Pattern Who This Book Is For :

IT professionals, analysts, developers, linguistic experts, data scientists, and anyone with a keen interest in linguistics, analytics, and generating insights from textual data

Daniel Arbuckle's Mastering Python - Daniel Arbuckle 2017-06-30
Gain a thorough understanding of operating in a Python development environment, and some of the most important advanced topics with Daniel Arbuckle. This dynamic, concise book is full of real-world solutions for Python 3.6 problems, and advanced-level concepts such as reactive programming, microservices, ctypes and Cython.About This Book* Covers the latest and advanced concepts of Python such as parallel processing with Python 3.6* Explore the Python language from its basic installation and setup to concepts such as reactive programming and microservices* Get introduced to the mechanism for rewriting code in a compiled language along with ctypes and Cython toolsWho This Book Is ForIf you are a programmer and are familiar with the basics of Python, and you want to broaden your knowledge base to develop projects better and faster, this book is for you. Even if you are not familiar with Python, Daniel Arbuckle's Mastering Python starts with the basics and takes you on a journey to become an expert in the technology.What You Will Learn* Get to grips with the basics of operating in a Python development environment* Build Python packages to efficiently create reusable code* Become proficient at creating tools and utility programs in Python* Use the Git version control system to protect your development environment from unwanted changes* Harness the power of Python to automate other software* Distribute computational tasks across multiple processors* Handle high I/O loads with asynchronous I/O to get a smoother performance* Take advantage of Python's metaprogramming and

programmable syntax features* Get acquainted with the concepts behind reactive programming and RxPyIn DetailDaniel Arbuckle's Mastering Python covers the basics of operating in a Python development environment, before moving on to more advanced topics. Daniel presents you with real-world solutions to Python 3.6 and advanced-level concepts, such as reactive programming, microservices, ctypes, and Cython tools.You don't need to be familiar with the Python language to use this book, as Daniel starts with a Python primer. Throughout, Daniel highlights the major aspects of managing your Python development environment, shows you how to handle parallel computation, and helps you to master asynchronous I/O with Python 3.6 to improve performance. Finally, Daniel will teach you the secrets of metaprogramming and unit testing in Python, helping you acquire the perfect skillset to be a Python expert.Daniel will get you up to speed on everything from basic programming practices to high-end tools and techniques, things that will help set you apart as a successful Python programmer.Style and ApproachDaniel Arbuckle's Mastering Python covers basic to advanced-level concepts in computer science. If you are a beginner, then Daniel will help you get started. If you are experienced, he will expand your knowledge base.

Python Network Programming Cookbook - Dr. M. O. Faruque Sarker 2014-03-26
An easy-to-follow guide full of hands-on examples on real-world networking tasks. It covers the advanced topics of network programming in Python using a set of selected recipes. If you are a network programmer, system/network administrator, or a web application developer, this book is ideal for you. You should have a basic familiarity with the Python programming language and TCP/IP networking concepts. However if you are a novice, you will develop an understanding of

the concepts as you progress with this book. This book will serve as a supplementary material for developing hands-on skills in any academic course on network programming.

Python Network Programming - Abhishek Ratan 2019-01-31 Power up your network applications with Python programming Key FeaturesMaster Python skills to develop powerful network applicationsGrasp the fundamentals and functionalities of SDNDesign multi-threaded, event-driven architectures for echo and chat serversBook Description This Learning Path highlights major aspects of Python network programming such as writing simple networking clients, creating and deploying SDN and NFV systems, and extending your network with Mininet. You'll also learn how to automate legacy and the latest network devices. As you progress through the chapters, you'll use Python for DevOps and open source tools to test, secure, and analyze your network. Toward the end, you'll develop client-side applications, such as web API clients, email clients, SSH, and FTP, using socket programming. By the end of this Learning Path, you will have learned how to analyze a network's security vulnerabilities using advanced network packet capture and analysis techniques. This Learning Path includes content from the following Packt products: Practical Network Automation by Abhishek Ratan Mastering Python Networking by Eric ChouPython Network Programming Cookbook, Second Edition by Pradeeban Kathiravelu, Dr. M. O. Faruque SarkerWhat you will learnCreate socket-based networks with asynchronous modelsDevelop client apps for web APIs, including S3 Amazon and TwitterTalk to email and remote network servers with different protocolsIntegrate Python with Cisco, Juniper, and Arista eAPI for automationUse Telnet and SSH connections for remote system monitoringInteract with

websites via XML-RPC, SOAP, and REST APIsBuild networks with Ryu, OpenDaylight, Floodlight, ONOS, and POXConfigure virtual networks in different deployment environmentsWho this book is for If you are a Python developer or a system administrator who wants to start network programming, this Learning Path gets you a step closer to your goal. IT professionals and DevOps engineers who are new to managing network devices or those with minimal experience looking to expand their knowledge and skills in Python will also find this Learning Path useful. Although prior knowledge of networking is not required, some experience in Python programming will be helpful for a better understanding of the concepts in the Learning Path.
Mining of Massive Datasets - Jure Leskovec 2014-11-13 Now in its second edition, this book focuses on practical algorithms for mining data from even the largest datasets. Text Analytics with Python - Dipanjan Sarkar 2019-05-21 Leverage Natural Language Processing (NLP) in Python and learn how to set up your own robust environment for performing text analytics. This second edition has gone through a major revamp and introduces several significant changes and new topics based on the recent trends in NLP. You'll see how to use the latest state-of-the-art frameworks in NLP, coupled with machine learning and deep learning models for supervised sentiment analysis powered by Python to solve actual case studies. Start by reviewing Python for NLP fundamentals on strings and text data and move on to engineering representation methods for text data, including both traditional statistical models and newer deep learning-based embedding models. Improved techniques and new methods around parsing and processing text are discussed as well. Text summarization and topic models have been overhauled so the book showcases how to build, tune, and interpret topic

models in the context of an interest dataset on NIPS conference papers. Additionally, the book covers text similarity techniques with a real-world example of movie recommenders, along with sentiment analysis using supervised and unsupervised techniques. There is also a chapter dedicated to semantic analysis where you'll see how to build your own named entity recognition (NER) system from scratch. While the overall structure of the book remains the same, the entire code base, modules, and chapters has been updated to the latest Python 3.x release. What You'll Learn • Understand NLP and text syntax, semantics and structure• Discover text cleaning and feature engineering• Review text classification and text clustering • Assess text summarization and topic models• Study deep learning for NLP Who This Book Is For IT professionals, data analysts, developers, linguistic experts, data scientists and engineers and basically anyone with a keen interest in linguistics, analytics and generating insights from textual data.
Python Social Media Analytics - Siddhartha Chatterjee 2017-07-28
Leverage the power of Python to collect, process, and mine deep insights from social media data About This Book Acquire data from various social media platforms such as Facebook, Twitter, YouTube, GitHub, and more Analyze and extract actionable insights from your social data using various Python tools A highly practical guide to conducting efficient social media analytics at scale Who This Book Is For If you are a programmer or a data analyst familiar with the Python programming language and want to perform analyses of your social data to acquire valuable business insights, this book is for you. The book does not assume any prior knowledge of any data analysis tool or process. What You Will Learn Understand the basics of social media mining Use PyMongo to clean, store, and access data in MongoDB

Understand user reactions and emotion detection on Facebook Perform Twitter sentiment analysis and entity recognition using Python Analyze video and campaign performance on YouTube Mine popular trends on GitHub and predict the next big technology Extract conversational topics on public internet forums Analyze user interests on Pinterest Perform large-scale social media analytics on the cloud In Detail Social Media platforms such as Facebook, Twitter, Forums, Pinterest, and YouTube have become part of everyday life in a big way. However, these complex and noisy data streams pose a potent challenge to everyone when it comes to harnessing them properly and benefiting from them. This book will introduce you to the concept of social media analytics, and how you can leverage its capabilities to empower your business. Right from acquiring data from various social networking sources such as Twitter, Facebook, YouTube, Pinterest, and social forums, you will see how to clean data and make it ready for analytical operations using various Python APIs. This book explains how to structure the clean data obtained and store in MongoDB using PyMongo. You will also perform web scraping and visualize data using Scrappy and Beautifulsoup. Finally, you will be introduced to different techniques to perform analytics at scale for your social data on the cloud, using Python and Spark. By the end of this book, you will be able to utilize the power of Python to gain valuable insights from social media data and use them to enhance your business processes. Style and approach This book follows a step-by-step approach to teach readers the concepts of social media analytics using the Python programming language. To explain various data analysis processes, real-world datasets are used wherever required.
R Machine Learning By Example - Raghav Bali 2016-03-31
Understand the fundamentals of machine learning with R and

build your own dynamic algorithms to tackle complicated real-world problems successfully About This Book Get to grips with the concepts of machine learning through exciting real-world examples Visualize and solve complex problems by using power-packed R constructs and its robust packages for machine learning Learn to build your own machine learning system with this example-based practical guide Who This Book Is For If you are interested in mining useful information from data using state-of-the-art techniques to make data-driven decisions, this is a go-to guide for you. No prior experience with data science is required, although basic knowledge of R is highly desirable. Prior knowledge in machine learning would be helpful but is not necessary. What You Will Learn Utilize the power of R to handle data extraction, manipulation, and exploration techniques Use R to visualize data spread across multiple dimensions and extract useful features Explore the underlying mathematical and logical concepts that drive machine learning algorithms Dive deep into the world of analytics to predict situations correctly Implement R machine learning algorithms from scratch and be amazed to see the algorithms in action Write reusable code and build complete machine learning systems from the ground up Solve interesting real-world problems using machine learning and R as the journey unfolds Harness the power of robust and optimized R packages to work on projects that solve real-world problems in machine learning and data science In Detail Data science and machine learning are some of the top buzzwords in the technical world today. From retail stores to Fortune 500 companies, everyone is working hard to making machine learning give them data-driven insights to grow their business. With powerful data manipulation features, machine learning packages, and an active developer community, R empowers users

to build sophisticated machine learning systems to solve real-world data problems. This book takes you on a data-driven journey that starts with the very basics of R and machine learning and gradually builds upon the concepts to work on projects that tackle real-world problems. You'll begin by getting an understanding of the core concepts and definitions required to appreciate machine learning algorithms and concepts. Building upon the basics, you will then work on three different projects to apply the concepts of machine learning, following current trends and cover major algorithms as well as popular R packages in detail. These projects have been neatly divided into six different chapters covering the worlds of e-commerce, finance, and social-media, which are at the very core of this data-driven revolution. Each of the projects will help you to understand, explore, visualize, and derive insights depending upon the domain and algorithms. Through this book, you will learn to apply the concepts of machine learning to deal with data-related problems and solve them using the powerful yet simple language, R. Style and approach The book is an enticing journey that starts from the very basics to gradually pick up pace as the story unfolds. Each concept is first defined in the larger context of things succinctly, followed by a detailed explanation of their application. Each topic is explained with the help of a project that solves a real real-world problem involving hands-on work thus giving you a deep insight into the world of machine learning.

Ethics for the Information Age - Michael Jay Quinn 2006 Widely praised for its balanced treatment of computer ethics, Ethics for the Information Age offers a modern presentation of the moral controversies surrounding information technology. Topics such as privacy and intellectual property are explored through multiple ethical theories, encouraging readers to think

critically about these issues and to make their own ethical decisions.

A Pragmatic Introduction to Secure Multi-Party Computation - David Evans 2018-12-19 Practitioners and researchers seeking a concise, accessible introduction to secure multi-party computation which quickly enables them to build practical systems or conduct further research will find this essential reading.

Practical Statistics for Data Scientists - Peter Bruce 2017-05-10 Statistical methods are a key part of of data science, yet very few data scientists have any formal statistics training. Courses and books on basic statistics rarely cover the topic from a data science perspective. This practical guide explains how to apply various statistical methods to data science, tells you how to avoid their misuse, and gives you advice on what's important and what's not. Many data science resources incorporate statistical methods but lack a deeper statistical perspective. If you're familiar with the R programming language, and have some exposure to statistics, this quick reference bridges the gap in an accessible, readable format. With this book, you'll learn: Why exploratory data analysis is a key preliminary step in data science How random sampling can reduce bias and yield a higher quality dataset, even with big data How the principles of experimental design yield definitive answers to questions How to use regression to estimate outcomes and detect anomalies Key classification techniques for predicting which categories a record belongs to Statistical machine learning methods that "learn" from data Unsupervised learning methods for extracting meaning from unlabeled data

Mastering Python Networking - Eric Chou 2018-08-29 Master the art of using Python for a diverse range of network engineering tasks Key Features Explore the power of Python libraries to tackle difficult

network problems efficiently and effectively Use Python for network device automation, DevOps, and software-defined networking Become an expert in implementing advanced network-related tasks with Python 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 this second edition of Mastering Python Networking, 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 book begins by reviewing the basics of Python and teaches you how Python can interact with both legacy and API-enabled network devices. As you make your way through the chapters, you will then learn to leverage high-level Python packages and frameworks to perform network engineering tasks for automation, monitoring, management, and enhanced security. In the concluding chapters, you will use Jenkins for continuous network integration as well as testing tools to verify your network. By the end of this book, you will be able to perform all networking tasks with ease using Python. What you will learn Use Python libraries to interact with your network Integrate Ansible 2.5 using Python to control Cisco, Juniper, and Arista eAPI network devices Leverage existing frameworks to construct high-level APIs Learn how to build virtual networks in the AWS Cloud Understand how Jenkins can be used to automatically deploy changes in your network Use PyTest and Unittest for Test-Driven Network Development Who this book is for Mastering Python Networking is for network engineers and programmers who want to use Python for networking. Basic familiarity with Python

programming and networking-related concepts such as Transmission Control Protocol/Internet Protocol (TCP/IP) will be useful.
Learning NumPy Array - Ivan Idris 2014-06-13
A step-by-step guide, packed with examples of practical numerical analysis that will give you a comprehensive, but concise overview of NumPy. This book is for programmers, scientists, or engineers, who have basic Python knowledge and would like to be able to do numerical computations with Python.
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
The Art of R Programming - Norman Matloff 2011-10-11 R is the world's most popular language for developing statistical software: Archaeologists use it to track the spread of ancient civilizations, drug companies use it to discover which medications are safe and effective, and actuaries use it to assess financial risks and keep economies running smoothly. The Art of R Programming takes you on a guided tour of software development with R, from basic types and data structures to advanced topics like closures, recursion, and anonymous functions. No statistical knowledge is required, and your programming skills can range from hobbyist to pro. Along the way, you'll learn about functional and object-oriented programming, running mathematical simulations, and rearranging complex data into simpler, more useful formats. You'll also learn to: –Create artful graphs to visualize complex data sets and functions –Write more efficient code using parallel R and vectorization –Interface R with C/C++ and Python for increased speed or functionality –Find new R packages for text analysis, image manipulation, and more –Squash annoying bugs with advanced debugging techniques Whether you're designing aircraft, forecasting the weather, or you just need to tame your data, The Art of R Programming is your guide to harnessing the power of

statistical computing.
Learning Python Network Programming - Dr. M. O. Faruque Sarker 2015-06-17 Network programming has always been a demanding task. With full-featured and well documented libraries all the way up the stack, Python makes network programming the enjoyable experience it should be. Starting with a walkthrough of today's major networking protocols, with this book you'll learn how to employ Python for network programming, how to request and retrieve web resources, and how to extract data in major formats over the Web. You'll utilize Python for e-mailing using different protocols and you'll interact with remote systems and IP and DNS networking. As the book progresses, socket programming will be covered, followed by how to design servers and the pros and cons of multithreaded and event-driven architectures. You'll develop practical client-side applications, including web API clients, e-mail clients, SSH, and FTP. These applications will also be implemented through existing web application frameworks.

Hands-On Networking Fundamentals - Michael Palmer 2012-06-21 HANDS-ON-NETWORKING FUNDAMENTALS, Second Edition, helps readers learn network administration from the ground up. Designed to provide a solid foundation in essential concepts and methods, this detailed introduction requires no previous experience, covering all of the critical knowledge and skills information technology professionals need to work with network operating systems in a network administration environment. Like other textbooks in the Hands-On series, this highly practical guide features a variety of projects in every chapter, with activities integrated closely with core material to facilitate understanding, reinforce learning, and build essential skills at every step. Now thoroughly revised to reflect

the latest advances in network technology, HANDS-ON-NETWORKING FUNDAMENTALS,Second Edition includes up-to-date coverage of key network operating systems, wireless and cellular networking, network protocols, and other important innovations in the field. Equally useful for students beginning to explore network administration and professionals preparing for certification, this book is a reliable, effective resource for networking success. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Handbook of Computer Networks and Cyber Security - Brij B. Gupta 2019-12-31 This handbook introduces the basic principles and fundamentals of cyber security towards establishing an understanding of how to protect computers from hackers and adversaries. The highly informative subject matter of this handbook, includes various concepts, models, and terminologies along with examples and illustrations to demonstrate substantial technical details of the field. It motivates the readers to exercise better protection and defense mechanisms to deal with attackers and mitigate the situation. This handbook also outlines some of the exciting areas of future research where the existing approaches can be implemented. Exponential increase in the use of computers as a means of storing and retrieving security-intensive information, requires placement of adequate security measures to safeguard the entire computing and communication scenario. With the advent of Internet and its underlying technologies, information security aspects are becoming a prime concern towards protecting the networks and the cyber ecosystem from variety of threats, which is illustrated in this handbook. This handbook primarily targets professionals in security, privacy and trust to

use and improve the reliability of businesses in a distributed manner, as well as computer scientists and software developers, who are seeking to carry out research and develop software in information and cyber security. Researchers and advanced-level students in computer science will also benefit from this reference.
Mastering Python for Networking and Security - José Manuel Ortega 2018-09-28 Nowadays, configuring a network and automating security protocols are quite difficult to implement. However, using Python makes it easy to automate this whole process. This book explains the process of using Python for building networks, detecting network errors, and performing different security protocols using Python Scripting.
Learning Bayesian Models with R - Dr. Hari M. Koduvely 2015-10-28 Become an expert in Bayesian Machine Learning methods using R and apply them to solve real-world big data problems About This Book Understand the principles of Bayesian Inference with less mathematical equations Learn state-of-the art Machine Learning methods Familiarize yourself with the recent advances in Deep Learning and Big Data frameworks with this step-by-step guide Who This Book Is For This book is for statisticians, analysts, and data scientists who want to build a Bayes-based system with R and implement it in their day-to-day models and projects. It is mainly intended for Data Scientists and Software Engineers who are involved in the development of Advanced Analytics applications. To understand this book, it would be useful if you have basic knowledge of probability theory and analytics and some familiarity with the programming language R. What You Will Learn Set up the R environment Create a classification model to predict and explore discrete variables Get acquainted with Probability Theory to analyze random events Build Linear Regression

models Use Bayesian networks to infer the probability distribution of decision variables in a problem Model a problem using Bayesian Linear Regression approach with the R package BLR Use Bayesian Logistic Regression model to classify numerical data Perform Bayesian Inference on massively large data sets using the MapReduce programs in R and Cloud computing In Detail Bayesian Inference provides a unified framework to deal with all sorts of uncertainties when learning patterns form data using machine learning models and use it for predicting future observations. However, learning and implementing Bayesian models is not easy for data science practitioners due to the level of mathematical treatment involved. Also, applying Bayesian methods to real-world problems requires high computational resources. With the recent advances in computation and several open sources packages available in R, Bayesian modeling has become more feasible to use for practical applications today.

Therefore, it would be advantageous for all data scientists and engineers to understand Bayesian methods and apply them in their projects to achieve better results. Learning Bayesian Models with R starts by giving you a comprehensive coverage of the Bayesian Machine Learning models and the R packages that implement them. It begins with an introduction to the fundamentals of probability theory and R programming for those who are new to the subject. Then the book covers some of the important machine learning methods, both supervised and unsupervised learning, implemented using Bayesian Inference and R. Every chapter begins with a theoretical description of the method explained in a very simple manner. Then, relevant R packages are discussed and some illustrations using data sets from the UCI Machine Learning repository are given. Each chapter ends with some simple exercises for you to get hands-on experience of the

concepts and R packages discussed in the chapter. The last chapters are devoted to the latest development in the field, specifically Deep Learning, which uses a class of Neural Network models that are currently at the frontier of Artificial Intelligence. The book concludes with the application of Bayesian methods on Big Data using the Hadoop and Spark frameworks. Style and approach The book first gives you a theoretical description of the Bayesian models in simple language, followed by details of its implementation in the R package. Each chapter has illustrations for the use of Bayesian model and the corresponding R package, using data sets from the UCI Machine Learning repository. Each chapter also contains sufficient exercises for you to get more hands-on practice.
An Introduction to Neural Networks - Kevin Gurney 2018-10-08
Though mathematical ideas underpin the study of neural networks, the author presents the fundamentals without the full mathematical apparatus. All aspects of the field are tackled, including artificial neurons as models of their real counterparts; the geometry of network action in pattern space; gradient descent methods, including back-propagation; associative memory and Hopfield nets; and self-organization and feature maps. The traditionally difficult topic of adaptive resonance theory is clarified within a hierarchical description of its operation. The book also includes several real-world examples to provide a concrete focus. This should enhance its appeal to those involved in the design, construction and management of networks in commercial environments and who wish to improve their understanding of network simulator packages. As a comprehensive and highly accessible introduction to one of the most important topics in cognitive and computer science, this volume should interest a wide range of readers, both students and professionals, in cognitive

science, psychology, computer science and electrical engineering.

Space Information Networks - Quan Yu 2018-02-02 This book constitutes the proceedings of the Second International Conference on Space Information Network, SINC 2017, held in Yinchuan, China, in August 2017. The 27 full and three short papers presented in this volume were carefully reviewed and selected from 145 submissions. The papers are organized in topical sections on system architecture and efficient networking mechanism; theory and method of high speed transmission; sparse representation and fusion processing.

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 FeaturesExplore the power of Python libraries to tackle difficult network problems efficiently and effectively, including pyATS, Nornir, and Ansible 2.8Use Python and Ansible for DevOps, network device automation, DevOps, and software-defined networkingBecome an expert in implementing advanced network-related tasks with Python 3Book 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 learnUse Python libraries to interact with your networkIntegrate Ansible 2.8 using Python to control Cisco, Juniper, and Arista network devicesLeverage existing Flask web frameworks to construct high-level APIsLearn how to build virtual networks in the AWS & Azure CloudLearn how to use Elastic Stack for network data analysisUnderstand how Jenkins can be used to automatically deploy changes in your networkUse PyTest and Unittest for Test-Driven Network Development in networking engineering with PythonWho 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.

Logistics 4.0 - Turan Paksoy 2020-12-18
Industrial revolutions have impacted both, manufacturing and service. From the steam engine to digital automated production, the industrial revolutions have conduced significant changes in operations and supply chain management (SCM) processes.

Swift changes in manufacturing and service systems have led to phenomenal improvements in productivity. The fast-paced environment brings new challenges and opportunities for the companies that are associated with the adaptation to the new concepts such as Internet of Things (IoT) and Cyber Physical Systems, artificial intelligence (AI), robotics, cyber security, data analytics, block chain and cloud technology. These emerging technologies facilitated and expedited the birth of Logistics 4.0. Industrial Revolution 4.0 initiatives in SCM has attracted stakeholders' attentions due to it is ability to empower using a set of technologies together that helps to execute more efficient production and distribution systems. This initiative has been called Logistics 4.0 of the fourth Industrial Revolution in SCM due to its high potential. Connecting entities, machines, physical items and enterprise resources to each other by using sensors, devices and the internet along the supply chains are the main attributes of Logistics 4.0. IoT enables customers to make more suitable and valuable decisions due to the data-driven structure of the Industry 4.0 paradigm. Besides that, the system's ability of gathering and analyzing information about the environment at any given time and adapting itself to the rapid changes add significant value to the SCM processes. In this peer-reviewed book, experts from all over the world, in the field present a conceptual framework for Logistics 4.0 and provide examples for usage of Industry 4.0 tools in SCM. This book is a work that will be beneficial for both practitioners and students and academicians, as it covers the theoretical framework, on the one hand, and includes examples of practice and real world.

Networking Fundamentals - Gordon Davies 2019-12-17 Become well-versed with basic networking concepts such as

routing, switching, and subnetting, and prepare for the Microsoft 98-366 exam Key Features Build a strong foundation in networking concepts Explore both the hardware and software aspects of networking Prepare by taking mock tests with up-to-date exam questions Book Description A network is a collection of computers, servers, mobile devices, or other computing devices connected for sharing data. This book will help you become well versed in basic networking concepts and prepare to pass Microsoft's MTA Networking Fundamentals Exam 98-366. Following Microsoft's official syllabus, the book starts by covering network infrastructures to help you differentiate intranets, internets, and extranets, and learn about network topologies. You'll then get up to date with common network hardware devices such as routers and switches and the media types used to connect them together. As you advance, the book will take you through

different protocols and services and the requirements to follow a standardized approach to networking. You'll get to grips with the OSI and TCP/IP models as well as IPv4 and IPv6. The book also shows you how to recall IP addresses through name resolution. Finally, you'll be able to practice everything you've learned and take the exam confidently with the help of mock tests. By the end of this networking book, you'll have developed a strong foundation in the essential networking concepts needed to pass Exam 98-366. What you will learn Things you will learn: Become well versed in networking topologies and concepts Understand network infrastructures such as intranets, extranets, and more Explore network switches, routers, and other network hardware devices Get to grips with different network protocols and models such as OSI and TCP/IP Work with a variety of network services such as DHCP, NAT, firewalls, and remote access Apply

networking concepts in different real-world scenarios Who this book is for If you're new to the IT industry or simply want to gain a thorough understanding of networking, this book is for you. A basic understanding of the Windows operating system and your network environment will be helpful.

Essentials of Programming Languages - Daniel P. Friedman 2001
This textbook offers an understanding of the essential concepts of programming languages. The text uses interpreters, written in Scheme, to express the semantics of many essential language elements in a way that is both clear and directly executable.

Learning Python Networking - José Manuel Ortega 2019-03-29 Achieve improved network programmability and automation by leveraging powerful network programming concepts, algorithms, and tools Key FeaturesDeal with remote network servers using SSH, FTP, SNMP and LDAP protocols.Design multi threaded and event-driven architectures for asynchronous servers programming.Leverage your Python programming skills to build powerful network applicationsBook Description Network programming has always been a demanding task. With full-featured and well-documented libraries all the way up the stack, Python makes network programming the enjoyable experience it should be. Starting with a walk through of today's major networking protocols, through this book, you'll learn how to employ Python for network programming, how to request and retrieve web resources, and how to extract data in major formats over the web. You will utilize Python for emailing using different protocols, and you'll interact with remote systems and IP and DNS networking. You will cover the connection of networking devices and configuration using Python 3.7, along with cloud-based network management tasks

using Python. As the book progresses, socket programming will be covered, followed by how to design servers, and the pros and cons of multithreaded and event-driven architectures. You'll develop practical clientside applications, including web API clients, email clients, SSH, and FTP. These applications will also be implemented through existing web application frameworks. What you will learnExecute Python modules on networking toolsAutomate tasks regarding the analysis and extraction of information from a networkGet to grips with asynchronous programming modules available in PythonGet to grips with IP address manipulation modules using Python programmingUnderstand the main frameworks available in Python that are focused on web applicationManipulate IP addresses and perform CIDR calculationsWho this book is for If you're a Python developer or a system administrator with Python experience and you're looking to take your first steps in network programming, then this book is for you. If you're a network engineer or a network professional aiming to be more productive and efficient in networking programmability and automation then this book would serve as a useful resource. Basic knowledge of Python is assumed.
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

Python Network Programming Cookbook - Pradeeban Kathiravelu 2017-08-09 Discover practical solutions for a wide range of real-world network programming tasks About This Book Solve real-world tasks in the area of network programming, system/networking administration, network monitoring, and more. Familiarize yourself with the fundamentals and functionalities of SDN Improve your skills to become the next-gen network engineer by learning the various facets of Python programming Who This Book Is For This book is for network engineers, system/network administrators,

network programmers, and even web application developers who want to solve everyday network-related problems. If you are a novice, you will develop an understanding of the concepts as you progress with this book. What You Will Learn Develop TCP/IP networking client/server applications Administer local machines' IPv4/IPv6 network interfaces Write multi-purpose efficient web clients for HTTP and HTTPS protocols Perform remote system administration tasks over Telnet and SSH connections Interact with popular websites via web services such as XML-RPC, SOAP, and REST APIs Monitor and analyze major common network security vulnerabilities Develop Software-Defined Networks with Ryu, OpenDaylight, Floodlight, ONOS, and POX Controllers Emulate simple and complex networks with Mininet and its extensions for network and systems emulations Learn to configure and build network systems and Virtual Network Functions (VNF) in heterogeneous deployment environments Explore various Python modules to program the Internet In Detail Python Network Programming Cookbook - Second Edition highlights the major aspects of network programming in Python, starting from writing simple networking clients to developing and deploying complex Software-Defined Networking (SDN) and Network Functions Virtualization (NFV) systems. It creates the building blocks for many practical web and networking applications that rely on various networking protocols. It presents the power and beauty of Python to solve numerous real-world tasks in the area of network programming, network and system administration, network monitoring, and web-application development. In this edition, you will also be introduced to network modelling to build your own cloud network. You will learn about the concepts and fundamentals of SDN and then

extend your network with Mininet. Next, you'll find recipes on Authentication, Authorization, and Accounting (AAA) and open and proprietary SDN approaches and frameworks. You will also learn to configure the Linux Foundation networking ecosystem and deploy and automate your networks with Python in the cloud and the Internet scale. By the end of this book, you will be able to analyze your network security vulnerabilities using advanced network packet capture and analysis techniques. Style and approach This book follows a practical approach and covers major aspects of network programming in Python. It provides hands-on recipes combined with short and concise explanations on code snippets. This book will serve as a supplementary material to develop hands-on skills in any academic course on network programming. This book further elaborates network softwarization, including Software-Defined Networking (SDN), Network Functions Virtualization (NFV), and orchestration. We learn to configure and deploy enterprise network platforms, develop applications on top of them with Python.

RADIUS - Jonathan Hassell 2003
RADIUS, or Remote Authentication Dial-In User Service, is a widely deployed protocol that enables companies to authenticate, authorize and account for remote users who want access to a system or service from a central network server. RADIUS provides a complete, detailed guide to the underpinnings of the RADIUS protocol. Author Jonathan Hassell brings practical suggestions and advice for implementing RADIUS and provides instructions for using an open-source variation called FreeRADIUS

Data-intensive Text Processing with MapReduce - Jimmy Lin 2010
Our world is being revolutionized by data-driven methods: access to large amounts of data has generated

new insights and opened exciting new opportunities in commerce, science, and computing applications. Processing the enormous quantities of data necessary for these advances requires large clusters, making distributed computing paradigms more crucial than ever. MapReduce is a programming model for expressing distributed computations on massive datasets and an execution framework for large-scale data processing on clusters of commodity servers. The programming model provides an easy-to-understand abstraction for designing scalable algorithms, while the execution framework transparently handles many system-level details, ranging from scheduling to synchronization to fault tolerance. This book focuses on MapReduce algorithm design, with an emphasis on text processing algorithms common in natural language processing, information retrieval, and machine learning. We introduce the notion of MapReduce design patterns, which represent general reusable solutions to commonly occurring problems across a variety of problem domains. This book not only intends to help the reader "think in MapReduce", but also discusses limitations of the programming model as well. This volume is a printed version of a work that appears in the Synthesis Digital Library of Engineering and Computer Science. Synthesis Lectures provide concise, original presentations of important research and development topics, published quickly, in digital and print formats. For more information visit www.morganclaypool.com
Network Programmability and Automation - Jason Edelman 2018-02-02
Like sysadmins before them, network engineers are finding that they cannot do their work manually anymore. As the field faces new protocols, technologies, delivery models, and a pressing need for businesses to be more agile and flexible, network

automation is becoming essential. This practical guide shows network engineers how to use a range of technologies and tools—including Linux, Python, JSON, and XML—to automate their systems through code. Network programming and automation will help you simplify tasks involved in configuring, managing, and operating network equipment, topologies, services, and connectivity. Through the course of the book, you'll learn the basic skills and tools you need to make this critical transition. This book covers: Python programming basics: data types, conditionals, loops, functions, classes, and modules Linux fundamentals to provide the foundation you need on your network automation journey Data formats and models: JSON, XML, YAML, and YANG for networking Jinja templating and its applicability for creating network device configurations The role of application programming interfaces (APIs) in network automation Source control with Git to manage code changes during the automation process How Ansible, Salt, and StackStorm open source automation tools can be used to automate network devices Key tools and technologies required for a Continuous Integration (CI) pipeline in network operations

Distributed Computing - Ajay D. Kshemkalyani 2011-03-03 Designing distributed computing systems is a complex process requiring a solid understanding of the design problems and the theoretical and practical aspects of their solutions. This comprehensive textbook covers the fundamental principles and models underlying the theory, algorithms and systems aspects of distributed computing. Broad and detailed coverage of the theory is balanced with practical systems-related issues such as mutual exclusion, deadlock detection, authentication, and failure recovery. Algorithms are carefully selected, lucidly presented, and described without complex proofs. Simple

explanations and illustrations are used to elucidate the algorithms. Important emerging topics such as peer-to-peer networks and network security are also considered. With vital algorithms, numerous illustrations, examples and homework problems, this textbook is suitable for advanced undergraduate and graduate students of electrical and computer engineering and computer science. Practitioners in data networking and sensor networks will also find this a valuable resource. Additional resources are available online at www.cambridge.org/9780521876346.

Data Storage Networking - Nigel Poulton 2014-03-05 Learn efficient ways to harness and manage your data storage networks Whether you're preparing for the CompTIA Storage+ exam or simply seeking a deeper understanding of data storage networks, this Sybex guide will help you get there. This book covers data storage from the basics to advanced topics, and provides practical examples to show you ways to deliver world-class solutions. In addition, it covers all the objectives of the CompTIA Storage+ exam (SG0-001), including storage components, connectivity, storage management, data protection, and storage performance. Focuses on designing, implementing, and administering storage for today's evolving organizations, getting under the hood of the technologies that enable performance, resiliency, availability, recoverability, and simplicity Covers virtualization, big data, cloud storage, security, and scalability as well as how storage fits in to the wider technology environments prevalent in today's cloud era Provides advice and real-world examples that storage administrators in the trenches can actually use An excellent study aid for the CompTIA Storage+ exam (SG0-001), covering all the exam objectives Data Storage Networking: Real World Skills

for the CompTIA Storage+ Certification and Beyond provides a solid foundation for data storage administrators and a reference that can be consulted again and again.

Mastering Python Forensics - Dr. Michael Spreitzenbarth 2015-10-30 Master the art of digital forensics and analysis with Python About This Book Learn to perform forensic analysis and investigations with the help of Python, and gain an advanced understanding of the various Python libraries and frameworks Analyze Python scripts to extract metadata and investigate forensic artifacts The writers, Dr. Michael Spreitzenbarth and Dr. Johann Uhrmann, have used their experience to craft this hands-on guide to using Python for forensic analysis and investigations Who This Book Is For If you are a network security professional or forensics analyst who wants to gain a deeper understanding of performing forensic analysis with Python, then this book is for you. Some Python experience would be helpful. What You Will Learn Explore the forensic analysis of different platforms such as Windows, Android, and vSphere Semi-automatically reconstruct major parts of the system activity and time-line Leverage Python ctypes for protocol decoding Examine artifacts from mobile, Skype, and browsers Discover how to utilize Python to improve the focus of your analysis Investigate in volatile memory with the help of volatility on the Android and Linux platforms In Detail Digital forensic analysis is the process of examining and extracting data digitally and examining it. Python has the combination of power, expressiveness, and ease of use that makes it an essential complementary tool to the traditional, off-the-shelf digital forensic tools. This book will teach you how to perform forensic analysis and investigations by exploring the capabilities of various Python libraries. The book starts by explaining the building blocks of the Python programming

language, especially ctypes in-depth, along with how to automate typical tasks in file system analysis, common correlation tasks to discover anomalies, as well as templates for investigations. Next, we'll show you cryptographic algorithms that can be used during forensic investigations to check for known files or to compare suspicious files with online services such as VirusTotal or Mobile-Sandbox. Moving on, you'll learn how to sniff on the network, generate and analyze network flows, and perform log correlation with the help of Python scripts and tools. You'll get to know about the concepts of virtualization and how virtualization influences IT forensics, and you'll discover how to perform forensic analysis of a jailbroken/rooted mobile device that is based on iOS or Android. Finally, the book teaches you how to analyze volatile memory and search for known malware samples based on YARA rules. Style and approach This easy-to-follow guide will demonstrate forensic analysis techniques by showing you how to solve real-word-scenarios step by step.

Applied Text Analysis with Python - Benjamin Bengfort 2018-06-11
From news and speeches to informal chatter on social media, natural language is one of the richest and most underutilized sources of data. Not only does it come in a constant stream, always changing and adapting in context; it also contains information that is not conveyed by traditional data sources. The key to unlocking natural language is through the creative application of text analytics. This practical book presents a data scientist's approach to building language-aware products with applied machine learning. You'll learn robust, repeatable, and scalable techniques for text analysis with Python, including contextual and linguistic feature engineering, vectorization, classification, topic modeling, entity resolution, graph analysis, and visual steering. By the end of

the book, you'll be equipped with practical methods to solve any number of complex real-world problems. Preprocess and vectorize text into high-dimensional feature representations Perform document classification and topic modeling Steer the model selection process with visual diagnostics Extract key phrases, named entities, and graph structures to reason about data in text Build a dialog framework to enable chatbots and language-driven interaction Use Spark to scale processing power and neural networks to scale model complexity

Algorithms for Scheduling Problems - FrankWerner 2018-08-24
This book is a printed edition of the Special Issue " Algorithms for Scheduling Problems" that was published in Algorithms