

Think Python How To Think Like A Computer Scientist

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Fluent Python - Luciano Ramalho 2015-07-30

Python's simplicity lets you become productive quickly, but this often means you aren't using everything it has to offer. With this hands-on guide, you'll learn how to write effective, idiomatic Python code by

leveraging its best—and possibly most

neglected—features.

Author Luciano Ramalho takes you through Python's core language features and libraries, and shows you how to make your code shorter, faster, and more readable at the same

time. Many experienced programmers try to bend Python to fit patterns they learned from other languages, and never discover Python features outside of their experience. With this book, those Python programmers will thoroughly learn how to become proficient in Python 3. This book covers: Python data model: understand how special methods are the key to the consistent behavior of objects Data structures: take full advantage of built-in types, and understand the text vs bytes duality in the Unicode age Functions as objects: view Python functions as first-class objects, and understand how this affects popular design patterns Object-oriented idioms: build classes by learning about references, mutability, interfaces, operator overloading,

and multiple inheritance Control flow: leverage context managers, generators, coroutines, and concurrency with the concurrent.futures and asyncio packages Metaprogramming: understand how properties, attribute descriptors, class decorators, and metaclasses work **Head First Python** - Paul Barry 2016-11-21 Want to learn the Python language without slogging your way through how-to manuals? With Head First Python, you'll quickly grasp Python's fundamentals, working with the built-in data structures and functions. Then you'll move on to building your very own webapp, exploring database management, exception handling, and data wrangling. If you're intrigued by what you can do with context managers, decorators,

comprehensions, and generators, it's all here. This second edition is a complete learning experience that will help you become a bonafide Python programmer in no time. Why does this book look so different? Based on the latest research in cognitive science and learning theory, Head First Python uses a visually rich format to engage your mind, rather than a text-heavy approach that puts you to sleep. Why waste your time struggling with new concepts? This multi-sensory learning experience is designed for the way your brain really works.

Think Java - Allen B. Downey 2016-05-06
Currently used at many colleges, universities, and high schools, this hands-on introduction to computer science is ideal for people with little or no programming

experience. The goal of this concise book is not just to teach you Java, but to help you think like a computer scientist. You'll learn how to program—a useful skill by itself—but you'll also discover how to use programming as a means to an end. Authors Allen Downey and Chris Mayfield start with the most basic concepts and gradually move into topics that are more complex, such as recursion and object-oriented programming. Each brief chapter covers the material for one week of a college course and includes exercises to help you practice what you've learned. Learn one concept at a time: tackle complex topics in a series of small steps with examples. Understand how to formulate problems, think creatively about solutions, and write

programs clearly and accurately Determine which development techniques work best for you, and practice the important skill of debugging Learn relationships among input and output, decisions and loops, classes and methods, strings and arrays Work on exercises involving word games, graphics, puzzles, and playing cards

Learn to Program with Python 3 - Irv Kalb

2018-08-22

Move from zero knowledge of programming to comfortably writing small to medium-sized programs in Python. Fully updated for Python 3, with code and examples throughout, the book explains Python coding with an accessible, step-by-step approach designed to bring you comfortably into the world of software development.

Real-world analogies make the material understandable, with a wide variety of well-documented examples to illustrate each concept. Along the way, you'll develop short programs through a series of coding challenges that reinforce the content of the chapters. Learn to Program with Python 3 guides you with material developed in the author's university computer science courses. The author's conversational style feels like you're working with a personal tutor. All material is thoughtfully laid out, each lesson building on previous ones. What You'll Learn Understand programming basics with Python, based on material developed in the author's college courses Learn core concepts: variables, functions, conditionals, loops, lists, strings,

and more Explore example programs including simple games you can program and customize Build modules to reuse your own code Who This Book Is For This book assumes no prior programming experience, and would be appropriate as text for a high school or college introduction to computer science.

R for Data Science -

Hadley Wickham

2016-12-12

Learn how to use R to turn raw data into insight, knowledge, and understanding. This book introduces you to R, RStudio, and the tidyverse, a collection of R packages designed to work together to make data science fast, fluent, and fun. Suitable for readers with no previous programming experience, R for Data Science is designed to get you doing data science as

quickly as possible. Authors Hadley Wickham and Garrett Grolemund guide you through the steps of importing, wrangling, exploring, and modeling your data and communicating the results. You'll get a complete, big-picture understanding of the data science cycle, along with basic tools you need to manage the details. Each section of the book is paired with exercises to help you practice what you've learned along the way. You'll learn how to: Wrangle—transform your datasets into a form convenient for analysis Program—learn powerful R tools for solving data problems with greater clarity and ease Explore—examine your data, generate hypotheses, and quickly test them Model—provide a low-dimensional summary that captures true "signals" in your

dataset

Communicate—learn R
Markdown for integrating
prose, code, and results
Data Visualization -
Kieran Healy 2018-12-18
An accessible primer on
how to create effective
graphics from data This
book provides students
and researchers a hands-
on introduction to the
principles and practice
of data visualization.
It explains what makes
some graphs succeed
while others fail, how
to make high-quality
figures from data using
powerful and
reproducible methods,
and how to think about
data visualization in an
honest and effective
way. *Data Visualization*
builds the reader's
expertise in ggplot2, a
versatile visualization
library for the R
programming language.
Through a series of
worked examples, this
accessible primer then
demonstrates how to

create plots piece by
piece, beginning with
summaries of single
variables and moving on
to more complex
graphics. Topics include
plotting continuous and
categorical variables;
layering information on
graphics; producing
effective “small
multiple” plots;
grouping, summarizing,
and transforming data
for plotting; creating
maps; working with the
output of statistical
models; and refining
plots to make them more
comprehensible.
Effective graphics are
essential to
communicating ideas and
a great way to better
understand data. This
book provides the
practical skills
students and
practitioners need to
visualize quantitative
data and get the most
out of their research
findings. Provides
hands-on instruction

using R and ggplot2
Shows how the
“tidyverse” of data
analysis tools makes
working with R easier
and more consistent
Includes a library of
data sets, code, and
functions

Learning Python - Mark
Lutz 2013-06-12

Get a comprehensive, in-
depth introduction to
the core Python language
with this hands-on book.
Based on author Mark
Lutz’s popular training
course, this updated
fifth edition will help
you quickly write
efficient, high-quality
code with Python. It’s
an ideal way to begin,
whether you’re new to
programming or a
professional developer
versed in other
languages. Complete with
quizzes, exercises, and
helpful illustrations,
this easy-to-follow,
self-paced tutorial gets
you started with both
Python 2.7 and 3.3– the

latest releases in the
3.X and 2.X lines—plus
all other releases in
common use today. You’ll
also learn some advanced
language features that
recently have become
more common in Python
code. Explore Python’s
major built-in object
types such as numbers,
lists, and dictionaries
Create and process
objects with Python
statements, and learn
Python’s general syntax
model Use functions to
avoid code redundancy
and package code for
reuse Organize
statements, functions,
and other tools into
larger components with
modules Dive into
classes: Python’s
object-oriented
programming tool for
structuring code Write
large programs with
Python’s exception-
handling model and
development tools Learn
advanced Python tools,
including decorators,

descriptors,
metaclasses, and Unicode
processing

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

Python for Informatics - Charles Severance 2013

This book is designed to introduce students to programming and computational thinking through the lens of exploring data. You can think of Python as your tool to solve problems that are far beyond the capability of a spreadsheet. It is an easy-to-use and easy-to-learn programming language that is freely available on Windows, Macintosh, and Linux computers. There are free downloadable copies

of this book in various electronic formats and a self-paced free online course where you can explore the course materials. All the supporting materials for the book are available under open and remixable licenses at the www.py4inf.com web site. This book is designed to teach people to program even if they have no prior experience. This book covers Python 2. An updated version of this book that covers Python 3 is available and is titled, "Python for Everybody: Exploring Data in Python 3".

Introducing Python - Bill Lubanovic
2019-11-06

Easy to understand and fun to read, this updated edition of Introducing Python is ideal for beginning programmers as well as those new to the language. Author Bill Lubanovic takes you from

the basics to more involved and varied topics, mixing tutorials with cookbook-style code recipes to explain concepts in Python 3. End-of-chapter exercises help you practice what you've learned. You'll gain a strong foundation in the language, including best practices for testing, debugging, code reuse, and other development tips. This book also shows you how to use Python for applications in business, science, and the arts, using various Python tools and open source packages.

Python For Everyone -
Cay S. Horstmann
2019-02-21

Python for Everyone, 3rd Edition is an introduction to programming designed to serve a wide range of student interests and abilities, focused on the essentials, and on effective learning. It

is suitable for a first course in programming for computer scientists, engineers, and students in other disciplines. This text requires no prior programming experience and only a modest amount of high school algebra. Objects are used where appropriate in early chapters and students start designing and implementing their own classes in Chapter 9. New to this edition are examples and exercises that focus on various aspects of data science.

Think Bayes - Allen
Downey 2013-09-12

If you know how to program with Python, and know a little about probability, you're ready to tackle Bayesian statistics. This book shows you how to use Python code instead of math to help you learn Bayesian fundamentals. Once you get the math out of the way, you'll

be able to apply these techniques to real-world problems.

Think Stats - Allen B. Downey 2014-10-16

If you know how to program, you have the skills to turn data into knowledge, using tools of probability and statistics. This concise introduction shows you how to perform statistical analysis computationally, rather than mathematically, with programs written in Python. By working with a single case study throughout this thoroughly revised book, you'll learn the entire process of exploratory data analysis—from collecting data and generating statistics to identifying patterns and testing hypotheses. You'll explore distributions, rules of probability, visualization, and many other tools and concepts. New chapters

on regression, time series analysis, survival analysis, and analytic methods will enrich your discoveries. Develop an understanding of probability and statistics by writing and testing code Run experiments to test statistical behavior, such as generating samples from several distributions Use simulations to understand concepts that are hard to grasp mathematically Import data from most sources with Python, rather than rely on data that's cleaned and formatted for statistics tools Use statistical inference to answer questions about real-world data *Think Complexity* - Allen B. Downey 2012-02-23 Expand your Python skills by working with data structures and algorithms in a refreshing context—through an eye-

opening exploration of complexity science. Whether you're an intermediate-level Python programmer or a student of computational modeling, you'll delve into examples of complex systems through a series of exercises, case studies, and easy-to-understand explanations. You'll work with graphs, algorithm analysis, scale-free networks, and cellular automata, using advanced features that make Python such a powerful language. Ideal as a text for courses on Python programming and algorithms, *Think Complexity* will also help self-learners gain valuable experience with topics and ideas they might not encounter otherwise. Work with NumPy arrays and SciPy methods, basic signal processing and Fast Fourier Transform, and hash tables. Study abstract models of

complex physical systems, including power laws, fractals and pink noise, and Turing machines. Get starter code and solutions to help you re-implement and extend original experiments in complexity. Explore the philosophy of science, including the nature of scientific laws, theory choice, realism and instrumentalism, and other topics. Examine case studies of complex systems submitted by students and readers.

Learning How to Learn - Barbara Oakley, PhD
2018-08-07

A surprisingly simple way for students to master any subject-- based on one of the world's most popular online courses and the bestselling book *A Mind for Numbers*. *A Mind for Numbers* and its wildly popular online companion course "Learning How to Learn" have empowered

more than two million learners of all ages from around the world to master subjects that they once struggled with. Fans often wish they'd discovered these learning strategies earlier and ask how they can help their kids master these skills as well. Now in this new book for kids and teens, the authors reveal how to make the most of time spent studying. We all have the tools to learn what might not seem to come naturally to us at first--the secret is to understand how the brain works so we can unlock its power. This book explains: Why sometimes letting your mind wander is an important part of the learning process How to avoid "rut think" in order to think outside the box Why having a poor memory can be a good thing The value of metaphors in developing understanding A simple,

yet powerful, way to stop procrastinating Filled with illustrations, application questions, and exercises, this book makes learning easy and fun.

The Anarchist Cookbook -
William Powell
2018-03-11

The Anarchist Cookbook will shock, it will disturb, it will provoke. It places in historical perspective an era when "Turn on, Burn down, Blow up" are revolutionary slogans of the day. Says the author "This book... is not written for the members of fringe political groups, such as the Weatherman, or The Minutemen. Those radical groups don't need this book. They already know everything that's in here. If the real people of America, the silent majority, are going to survive, they must educate themselves.

That is the purpose of this book." In what the author considers a survival guide, there is explicit information on the uses and effects of drugs, ranging from pot to heroin to peanuts. There is detailed advice concerning electronics, sabotage, and surveillance, with data on everything from bugs to scramblers. There is a comprehensive chapter on natural, non-lethal, and lethal weapons, running the gamut from cattle prods to sub-machine guns to bows and arrows.

Deep Learning for Coders with fastai and PyTorch

- Jeremy Howard

2020-06-29

Deep learning is often viewed as the exclusive domain of math PhDs and big tech companies. But as this hands-on guide demonstrates, programmers comfortable with Python can achieve impressive results in

deep learning with little math background, small amounts of data, and minimal code. How? With fastai, the first library to provide a consistent interface to the most frequently used deep learning applications. Authors Jeremy Howard and Sylvain Gugger, the creators of fastai, show you how to train a model on a wide range of tasks using fastai and PyTorch. You'll also dive progressively further into deep learning theory to gain a complete understanding of the algorithms behind the scenes. Train models in computer vision, natural language processing, tabular data, and collaborative filtering. Learn the latest deep learning techniques that matter most in practice. Improve accuracy, speed, and reliability by understanding how deep

learning models work
Discover how to turn
your models into web
applications Implement
deep learning algorithms
from scratch Consider
the ethical implications
of your work Gain
insight from the
foreword by PyTorch
cofounder, Soumith
Chintala

Python Cookbook - David
Beazley 2013-05-10

If you need help writing
programs in Python 3, or
want to update older
Python 2 code, this book
is just the ticket.
Packed with practical
recipes written and
tested with Python 3.3,
this unique cookbook is
for experienced Python
programmers who want to
focus on modern tools
and idioms. Inside,
youâ??ll find complete
recipes for more than a
dozen topics, covering
the core Python language
as well as tasks common
to a wide variety of
application domains.

Each recipe contains
code samples you can use
in your projects right
away, along with a
discussion about how and
why the solution works.
Topics include: Data
Structures and
Algorithms Strings and
Text Numbers, Dates, and
Times Iterators and
Generators Files and I/O
Data Encoding and
Processing Functions
Classes and Objects
Metaprogramming Modules
and Packages Network and
Web Programming
Concurrency Utility
Scripting and System
Administration Testing,
Debugging, and
Exceptions C Extensions
**The Hitchhiker's Guide
to Python** - Kenneth
Reitz 2016-08-30
The Hitchhiker's Guide
to Python takes the
journeyman Pythonista to
true expertise. More
than any other language,
Python was created with
the philosophy of
simplicity and

parsimony. Now 25 years old, Python has become the primary or secondary language (after SQL) for many business users. With popularity comes diversity—and possibly dilution. This guide, collaboratively written by over a hundred members of the Python community, describes best practices currently used by package and application developers. Unlike other books for this audience, *The Hitchhiker's Guide* is light on reusable code and heavier on design philosophy, directing the reader to excellent sources that already exist.

HT THINK LIKE A COMPUTER SCIENTIST - Jeffrey Elkner
2016-10-04

The goal of this book is to teach you to think like a computer scientist. This way of thinking combines some of the best features of mathematics,

engineering, and natural science. Like mathematicians, computer scientists use formal languages to denote ideas (specifically computations). Like engineers, they design things, assembling components into systems and evaluating tradeoffs among alternatives. Like scientists, they observe the behavior of complex systems, form hypotheses, and test predictions. The single most important skill for a computer scientist is problem solving. Problem solving means the ability to formulate problems, think creatively about solutions, and express a solution clearly and accurately. As it turns out, the process of learning to program is an excellent opportunity to practice problem-solving skills. That's why this chapter is called, *The way of the*

program. On one level, you will be learning to program, a useful skill by itself. On another level, you will use programming as a means to an end. As we go along, that end will become clearer.

The Python Programming Language - Bradley N. Miller 2006-08

An excellent supplement to Computer Science Illuminated, as well as a superb primer, Computer Science: The Python Programming Language offers a clear introduction to this user-friendly language. This overview describes the fundamentals of the interactive Python environment, the structure of Python programs, how Python supports object-oriented programming, and much more. Beginning programmers will be relieved that this modern programming language is not only

easy to learn but easy to use as well!

Make Way for Ducklings - Robert McCloskey 1999-02-01

"Robert McCloskey's unusual and stunning pictures have long been a delight for their fun as well as their spirit of place."—The Horn Book Mrs. Mallard was sure that the pond in the Boston Public Gardens would be a perfect place for her and her eight ducklings to live. The problem was how to get them there through the busy streets of Boston. But with a little help from the Boston police, Mrs. Mallard and Jack, Kack, Lack, Nack, Ouack, Pack, and Quack arrive safely at their new home. This brilliantly illustrated, amusingly observed tale of Mallards on the move has won the hearts of generations of readers. Awarded the Caldecott Medal for the most

distinguished American picture book for children in 1941, it has since become a favorite of millions. This classic tale of the famous Mallard ducks of Boston is available for the first time in a full-sized paperback edition. Make Way for Ducklings has been described as "one of the merriest picture books ever" (The New York Times). Ideal for reading aloud, this book deserves a place of honor on every child's bookshelf. "This delightful picture book captures the humor and beauty of one special duckling family. ... McClosky's illustrations are brilliant and filled with humor. The details of the ducklings, along with the popular sights of Boston, come across wonderfully. The image of the entire family proudly walking in line is a classic."—The

Barnes & Noble Review
"The quaint story of the mallard family's search for the perfect place to hatch ducklings. ... For more than fifty years kids have been entertained by this warm and wonderful story."—Children's Literature

Python Crash Course -

Eric Matthes 2015-11-01
Python Crash Course is a fast-paced, thorough introduction to Python that will have you writing programs, solving problems, and making things that work in no time. In the first half of the book, you'll learn about basic programming concepts, such as lists, dictionaries, classes, and loops, and practice writing clean and readable code with exercises for each topic. You'll also learn how to make your programs interactive and how to test your code

safely before adding it to a project. In the second half of the book, you'll put your new knowledge into practice with three substantial projects: a Space Invaders-inspired arcade game, data visualizations with Python's super-handful libraries, and a simple web app you can deploy online. As you work through Python Crash Course you'll learn how to:

- Use powerful Python libraries and tools, including matplotlib, NumPy, and Pygal
- Make 2D games that respond to keypresses and mouse clicks, and that grow more difficult as the game progresses
- Work with data to generate interactive visualizations
- Create and customize Web apps and deploy them safely online
- Deal with mistakes and errors so you can solve your own programming problems

If

you've been thinking seriously about digging into programming, Python Crash Course will get you up to speed and have you writing real programs fast. Why wait any longer? Start your engines and code! Uses Python 2 and 3

Think Data Structures - Allen Downey 2017-07-07

If you're a student studying computer science or a software developer preparing for technical interviews, this practical book will help you learn and review some of the most important ideas in software engineering—data structures and algorithms—in a way that's clearer, more concise, and more engaging than other materials. By emphasizing practical knowledge and skills over theory, author Allen Downey shows you how to use data

structures to implement efficient algorithms, and then analyze and measure their performance. You'll explore the important classes in the Java collections framework (JCF), how they're implemented, and how they're expected to perform. Each chapter presents hands-on exercises supported by test code online. Use data structures such as lists and maps, and understand how they work

Build an application that reads Wikipedia pages, parses the contents, and navigates the resulting data tree

Analyze code to predict how fast it will run and how much memory it will require

Write classes that implement the Map interface, using a hash table and binary search tree

Build a simple web search engine with a crawler, an indexer that stores web page

contents, and a retriever that returns user query results

Other books by Allen Downey include Think Java, Think Python, Think Stats, and Think Bayes.

Think Python - Allen Downey 2015

Supercharged Python - Brian Overland 2019-06-28

"Brian Overland makes programming simple. . . . To my amazement, his books explain complicated code clearly enough for anyone to understand." –Art Sedighi, PhD

Tapping into the full power of Python doesn't have to be difficult.

Supercharged Python is written for people who've learned the fundamentals of the language but want to take their skills to the next level. After a quick review of Python, the book covers:

- advanced list and string

techniques; all the ways to handle text and binary files; financial applications; advanced techniques for writing classes; generators and decorators; and how to master packages such as Numpy (Numeric Python) to supercharge your applications! Use profilers and “magic methods” to code like a pro Harness the power of regular expressions to process text quickly with a single statement Take advantage of 22 coding shortcuts, along with performance tips, to save time and optimize your code Create really useful classes and objects, for games, simulations, money, mathematics, and more Use multiple modules to build powerful apps while avoiding the “gotchas” Import packages to dramatically speed up statistical operations—by as much as

100 times! Refer to the five-part language reference to look up fine points of the language Supercharged Python demonstrates techniques that allow you to write faster and more powerful code, whether you’re manipulating large amounts of data or building sophisticated applications. Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

Python for Software Design - Allen Downey
2009-03-09

Python for Software Design is a concise introduction to software design using the Python programming language. The focus is on the programming process, with special emphasis on debugging. The book includes a wide range of exercises, from short

examples to substantial projects, so that students have ample opportunity to practice each new concept.

Think Python - Allen B. Downey 2015-12-02

If you want to learn how to program, working with Python is an excellent way to start. This hands-on guide takes you through the language a step at a time, beginning with basic programming concepts before moving on to functions, recursion, data structures, and object-oriented design. This second edition and its supporting code have been updated for Python 3. Through exercises in each chapter, you'll try out programming concepts as you learn them. Think Python is ideal for students at the high school or college level, as well as self-learners, home-schooled students, and professionals who need

to learn programming basics. Beginners just getting their feet wet will learn how to start with Python in a browser. Start with the basics, including language syntax and semantics Get a clear definition of each programming concept Learn about values, variables, statements, functions, and data structures in a logical progression Discover how to work with files and databases Understand objects, methods, and object-oriented programming Use debugging techniques to fix syntax, runtime, and semantic errors Explore interface design, data structures, and GUI-based programs through case studies

Artificial Intelligence with Python - Prateek Joshi 2017-01-27

Build real-world Artificial Intelligence applications with Python

to intelligently interact with the world around you About This Book Step into the amazing world of intelligent apps using this comprehensive guide Enter the world of Artificial Intelligence, explore it, and create your own applications Work through simple yet insightful examples that will get you up and running with Artificial Intelligence in no time Who This Book Is For This book is for Python developers who want to build real-world Artificial Intelligence applications. This book is friendly to Python beginners, but being familiar with Python would be useful to play around with the code. It will also be useful for experienced Python programmers who are looking to use Artificial Intelligence techniques in their existing technology

stacks. What You Will Learn Realize different classification and regression techniques Understand the concept of clustering and how to use it to automatically segment data See how to build an intelligent recommender system Understand logic programming and how to use it Build automatic speech recognition systems Understand the basics of heuristic search and genetic programming Develop games using Artificial Intelligence Learn how reinforcement learning works Discover how to build intelligent applications centered on images, text, and time series data See how to use deep learning algorithms and build applications based on it In Detail Artificial Intelligence is becoming increasingly relevant in the modern world where everything is driven by

technology and data. It is used extensively across many fields such as search engines, image recognition, robotics, finance, and so on. We will explore various real-world scenarios in this book and you'll learn about various algorithms that can be used to build Artificial Intelligence applications. During the course of this book, you will find out how to make informed decisions about what algorithms to use in a given context. Starting from the basics of Artificial Intelligence, you will learn how to develop various building blocks using different data mining techniques. You will see how to implement different algorithms to get the best possible results, and will understand how to apply them to real-world scenarios. If you want to add an

intelligence layer to any application that's based on images, text, stock market, or some other form of data, this exciting book on Artificial Intelligence will definitely be your guide! Style and approach This highly practical book will show you how to implement Artificial Intelligence. The book provides multiple examples enabling you to create smart applications to meet the needs of your organization. In every chapter, we explain an algorithm, implement it, and then build a smart application.

Think Bayes - Allen B. Downey 2021-05-18

If you know how to program, you're ready to tackle Bayesian statistics. With this book, you'll learn how to solve statistical problems with Python code instead of mathematical formulas,

using discrete probability distributions rather than continuous mathematics. Once you get the math out of the way, the Bayesian fundamentals will become clearer and you'll begin to apply these techniques to real-world problems. Bayesian statistical methods are becoming more common and more important, but there aren't many resources available to help beginners. Based on undergraduate classes taught by author Allen B. Downey, this book's computational approach helps you get a solid start. Use your programming skills to learn and understand Bayesian statistics Work with problems involving estimation, prediction, decision analysis, evidence, and Bayesian hypothesis testing Get started with simple examples, using coins,

dice, and a bowl of cookies Learn computational methods for solving real-world problems
Python Data Science Handbook - Jake VanderPlas 2016-11-21
For many researchers, Python is a first-class tool mainly because of its libraries for storing, manipulating, and gaining insight from data. Several resources exist for individual pieces of this data science stack, but only with the Python Data Science Handbook do you get them all—IPython, NumPy, Pandas, Matplotlib, Scikit-Learn, and other related tools. Working scientists and data crunchers familiar with reading and writing Python code will find this comprehensive desk reference ideal for tackling day-to-day issues: manipulating, transforming, and

cleaning data; visualizing different types of data; and using data to build statistical or machine learning models. Quite simply, this is the must-have reference for scientific computing in Python. With this handbook, you'll learn how to use: IPython and Jupyter: provide computational environments for data scientists using Python NumPy: includes the ndarray for efficient storage and manipulation of dense data arrays in Python Pandas: features the DataFrame for efficient storage and manipulation of labeled/columnar data in Python Matplotlib: includes capabilities for a flexible range of data visualizations in Python Scikit-Learn: for efficient and clean Python implementations of the most important and established machine

learning algorithms
Automate the Boring Stuff with Python, 2nd Edition - Al Sweigart
2019-11-12

The second edition of this best-selling Python book (over 500,000 copies sold!) uses Python 3 to teach even the technically uninclined how to write programs that do in minutes what would take hours to do by hand. There is no prior programming experience required and the book is loved by liberal arts majors and geeks alike. If you've ever spent hours renaming files or updating hundreds of spreadsheet cells, you know how tedious tasks like these can be. But what if you could have your computer do them for you? In this fully revised second edition of the best-selling classic Automate the Boring Stuff with Python, you'll learn how

to use Python to write programs that do in minutes what would take you hours to do by hand -no prior programming experience required. You'll learn the basics of Python and explore Python's rich library of modules for performing specific tasks, like scraping data off websites, reading PDF and Word documents, and automating clicking and typing tasks. The second edition of this international fan favorite includes a brand-new chapter on input validation, as well as tutorials on automating Gmail and Google Sheets, plus tips on automatically updating CSV files. You'll learn how to create programs that effortlessly perform useful feats of automation to:

- Search for text in a file or across multiple files
- Create, update, move,

- and rename files and folders
- Search the Web and download online content
- Update and format data in Excel spreadsheets of any size
- Split, merge, watermark, and encrypt PDFs
- Send email responses and text notifications
- Fill out online forms

Step-by-step instructions walk you through each program, and updated practice projects at the end of each chapter challenge you to improve those programs and use your newfound skills to automate similar tasks. Don't spend your time doing work a well-trained monkey could do. Even if you've never written a line of code, you can make your computer do the grunt work. Learn how in Automate the Boring Stuff with Python, 2nd Edition.

Python for Everybody - Charles R. Severance

2016-04-09

Python for Everybody is designed to introduce students to programming and software development through the lens of exploring data. You can think of the Python programming language as your tool to solve data problems that are beyond the capability of a spreadsheet. Python is an easy to use and easy to learn programming language that is freely available on Macintosh, Windows, or Linux computers. So once you learn Python you can use it for the rest of your career without needing to purchase any software. This book uses the Python 3 language. The earlier Python 2 version of this book is titled "Python for Informatics: Exploring Information". There are free downloadable electronic copies of this book in various formats and supporting

materials for the book at www.pythonlearn.com. The course materials are available to you under a Creative Commons License so you can adapt them to teach your own Python course.

Think DSP - Allen B. Downey 2016-07-12

If you understand basic mathematics and know how to program with Python, you're ready to dive into signal processing. While most resources start with theory to teach this complex subject, this practical book introduces techniques by showing you how they're applied in the real world. In the first chapter alone, you'll be able to decompose a sound into its harmonics, modify the harmonics, and generate new sounds. Author Allen Downey explains techniques such as spectral decomposition, filtering, convolution,

and the Fast Fourier Transform. This book also provides exercises and code examples to help you understand the material. You'll explore: Periodic signals and their spectrums Harmonic structure of simple waveforms Chirps and other sounds whose spectrum changes over time Noise signals and natural sources of noise The autocorrelation function for estimating pitch The discrete cosine transform (DCT) for compression The Fast Fourier Transform for spectral analysis Relating operations in time to filters in the frequency domain Linear time-invariant (LTI) system theory Amplitude modulation (AM) used in radio Other books in this series include Think Stats and Think Bayes, also by Allen Downey.

Mathematics for Machine

Learning - Marc Peter Deisenroth 2020-04-23

The fundamental mathematical tools needed to understand machine learning include linear algebra, analytic geometry, matrix decompositions, vector calculus, optimization, probability and statistics. These topics are traditionally taught in disparate courses, making it hard for data science or computer science students, or professionals, to efficiently learn the mathematics. This self-contained textbook bridges the gap between mathematical and machine learning texts, introducing the mathematical concepts with a minimum of prerequisites. It uses these concepts to derive four central machine learning methods: linear regression, principal component analysis, Gaussian mixture models

and support vector machines. For students and others with a mathematical background, these derivations provide a starting point to machine learning texts. For those learning the mathematics for the first time, the methods help build intuition and practical experience with applying mathematical concepts. Every chapter includes worked examples and exercises to test understanding.

Programming tutorials are offered on the book's web site.

Python Crash Course, 2nd Edition - Eric Matthes
2019-05-03

The best-selling Python book in the world, with over 1 million copies sold! A fast-paced, no-nonsense, updated guide to programming in Python. If you've been thinking about learning how to code or picking up Python, this

internationally bestselling guide to the most popular programming language is your quickest, easiest way to get started and go! Even if you have no experience whatsoever, *Python Crash Course, 2nd Edition*, will have you writing programs, solving problems, building computer games, and creating data visualizations in no time. You'll begin with basic concepts like variables, lists, classes, and loops—with the help of fun skill-strengthening exercises for every topic—then move on to making interactive programs and best practices for testing your code. Later chapters put your new knowledge into play with three cool projects: a 2D Space Invaders-style arcade game, a set of responsive data visualizations you'll build with Python's

handy libraries (Pygame, Matplotlib, Plotly, Django), and a customized web app you can deploy online. Why wait any longer? Start your engine and code!

Think Julia - Ben Lauwens 2019-04-05

If you're just learning how to program, Julia is an excellent JIT-compiled, dynamically typed language with a clean syntax. This hands-on guide uses Julia 1.0 to walk you through programming one step at a time, beginning with basic programming concepts before moving on to more advanced capabilities, such as creating new types and multiple dispatch. Designed from the beginning for high performance, Julia is a general-purpose language ideal for not only numerical analysis and computational science but also web programming and scripting. Through

exercises in each chapter, you'll try out programming concepts as you learn them. Think Julia is perfect for students at the high school or college level as well as self-learners and professionals who need to learn programming basics. Start with the basics, including language syntax and semantics Get a clear definition of each programming concept Learn about values, variables, statements, functions, and data structures in a logical progression Discover how to work with files and databases Understand types, methods, and multiple dispatch Use debugging techniques to fix syntax, runtime, and semantic errors Explore interface design and data structures through case studies

Think Like a Programmer - V. Anton Spraul 2012-08-12

The real challenge of programming isn't learning a language's syntax—it's learning to creatively solve problems so you can build something great. In this one-of-a-kind text, author V. Anton Spraul breaks down the ways that programmers solve problems and teaches you what other introductory books often ignore: how to Think Like a Programmer. Each chapter tackles a single programming concept, like classes, pointers, and recursion, and open-ended exercises throughout challenge you to apply your knowledge. You'll also learn how to: —Split problems into discrete components to make them easier to solve —Make the most of code reuse with functions, classes, and libraries —Pick the perfect data structure for a particular job —Master more advanced

programming tools like recursion and dynamic memory —Organize your thoughts and develop strategies to tackle particular types of problems Although the book's examples are written in C++, the creative problem-solving concepts they illustrate go beyond any particular language; in fact, they often reach outside the realm of computer science. As the most skillful programmers know, writing great code is a creative art—and the first step in creating your masterpiece is learning to Think Like a Programmer.

Processing, second edition - Casey Reas
2014-12-19

The new edition of an introduction to computer programming within the context of the visual arts, using the open-source programming language Processing;

thoroughly updated throughout. The visual arts are rapidly changing as media moves into the web, mobile devices, and architecture. When designers and artists learn the basics of writing software, they develop a new form of literacy that enables them to create new media for the present, and to imagine future media that are beyond the capacities of current software tools. This book introduces this new literacy by teaching computer programming within the context of the visual arts. It offers a comprehensive reference and text for Processing (www.processing.org), an open-source programming language that can be used by students, artists, designers, architects, researchers, and anyone who wants to program images,

animation, and interactivity. Written by Processing's cofounders, the book offers a definitive reference for students and professionals. Tutorial chapters make up the bulk of the book; advanced professional projects from such domains as animation, performance, and installation are discussed in interviews with their creators. This second edition has been thoroughly updated. It is the first book to offer in-depth coverage of Processing 2.0 and 3.0, and all examples have been updated for the new syntax. Every chapter has been revised, and new chapters introduce new ways to work with data and geometry. New “synthesis” chapters offer discussion and worked examples of such topics as sketching with code, modularity, and

algorithms. New interviews have been added that cover a wider range of projects. "Extension" chapters are now offered online so they can be updated to keep pace with technological developments in such fields as computer vision and electronics. Interviews SUE.C, Larry Cuba, Mark Hansen, Lynn Hershman Leeson, Jürg Lehnli, LettError, Golan Levin and Zachary Lieberman, Benjamin Maus, Manfred Mohr, Ash Nehru, Josh On, Bob Sabiston, Jennifer Steinkamp, Jared Tarbell, Steph Thirion, Robert Winter

Think Perl 6 - Laurent Rosenfeld 2017-05-08

Want to learn how to program and think like a computer scientist? This practical guide gets you started on your programming journey with the help of Perl 6, the younger sister of the

popular Perl programming language. Ideal for beginners, this hands-on book includes over 100 exercises with multiple solutions, and more than 1,000 code examples so you can quickly practice what you learn. Experienced programmers—especially those who know Perl 5—will also benefit. Divided into two parts, Think Perl 6 starts with basic concepts that every programmer needs to know, and then focuses on different programming paradigms and some more advanced programming techniques. With two semesters' worth of lessons, this book is the perfect teaching tool for computer science beginners in colleges and universities. Learn basic concepts including variables, expressions, statements, functions, conditionals, recursion, and loops Understand

commonly used basic data structures and the most useful algorithms Dive into object-oriented programming, and learn how to construct your own types and methods to extend the language Use

grammars and regular expressions to analyze textual content Explore how functional programming can help you make your code simpler and more expressive