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If you are a Python developer with some experience of working on scientific, mathematical, and statistical applications and want to gain an expert understanding of NumPy programming in relation to science, math, and finance using practical recipes, then this book is for you. If you want a basic understanding of

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computer vision's underlying theory and algorithms, this hands-on introduction is the ideal place to start. You'll learn techniques for object recognition, 3D reconstruction, stereo imaging, augmented reality, and other computer vision applications as you follow clear examples written in Python. Programming Computer Vision with Python explains computer vision in broad terms that won't bog you down in

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theory. You get complete code samples with explanations on how to reproduce and build upon each example, along with exercises to help you apply what you've learned. This book is ideal for students, researchers, and enthusiasts with basic programming and standard mathematical skills. Learn techniques used in robot navigation, medical image analysis, and other computer vision applications Work with image mappings and

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transforms, such as texture warping and panorama creation  
Compute 3D reconstructions from several images of the same scene Organize images based on similarity or content, using clustering methods Build efficient image retrieval techniques to search for images based on visual content Use algorithms to classify image content and recognize objects Access the popular OpenCV library through a Python

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interface

Scripting with Python makes you productive and increases the reliability of your scientific work. Here, the author teaches you how to develop tailored, flexible, and efficient working environments built from small programs (scripts) written in Python. The focus is on examples and applications of relevance to computational science: gluing existing applications and tools,

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e.g. for automating simulation, data analysis, and visualization; steering simulations and computational experiments; equipping programs with graphical user interfaces; making computational Web services; creating interactive interfaces with a Maple/Matlab-like syntax to numerical applications in C/C++ or Fortran; and building flexible object-oriented programming interfaces to existing C/C++ or

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Fortran libraries.  
An effective guide to geographic information systems and remote sensing analysis using Python 3 About This Book Construct applications for GIS development by exploiting Python This focuses on built-in Python modules and libraries compatible with the Python Packaging Index distribution system—no compiling of C libraries necessary This practical, hands-on tutorial teaches you all

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about Geospatial analysis in Python Who This Book Is For If you are a Python developer, researcher, or analyst who wants to perform Geospatial, modeling, and GIS analysis with Python, then this book is for you. Familiarity with digital mapping and analysis using Python or another scripting language for automation or crunching data manually is appreciated. What You Will Learn Automate Geospatial analysis workflows using



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Python Code the simplest possible GIS in 60 lines of Python Mold thematic maps with Python tools Get hold of the various forms that geospatial data comes in Produce elevation contours using Python tools Create flood inundation models Apply Geospatial analysis to find out about real-time data tracking and for storm chasing In Detail Geospatial Analysis is used in almost every field you can think of from medicine, to

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defense, to farming. This book will guide you gently into this exciting and complex field. It walks you through the building blocks of geospatial analysis and how to apply them to influence decision making using the latest Python software. Learning Geospatial Analysis with Python, 2nd Edition uses the expressive and powerful Python 3 programming language to guide you through geographic information

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systems, remote sensing, topography, and more, while providing a framework for you to approach geospatial analysis effectively, but on your own terms. We start by giving you a little background on the field, and a survey of the techniques and technology used. We then split the field into its component specialty areas: GIS, remote sensing, elevation data, advanced modeling, and real-time data. This book will teach you

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everything you need to know about, Geospatial Analysis from using a particular software package or API to using generic algorithms that can be applied. This book focuses on pure Python whenever possible to minimize compiling platform-dependent binaries, so that you don't become bogged down in just getting ready to do analysis. This book will round out your technical library through handy recipes that will give you a

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good understanding of a field that supplements many a modern day human endeavors. Style and approach This is a practical, hands-on tutorial that teaches you all about Geospatial analysis interactively using Python.

Mobile Python

Hands-On Image

Processing with Python

Applying genetic

algorithms to solve real-world deep learning and artificial intelligence problems

Collecting More Data

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from the Modern Web  
Soil Physics with Python  
Programming Computer  
Vision with Python  
Python Projects  
*The Art of UNIX Programming*  
*poses the belief that*  
*understanding the unwritten*  
*UNIX engineering tradition*  
*and mastering its design*  
*patterns will help*  
*programmers of all stripes*  
*to become better*  
*programmers. This book*  
*attempts to capture the*  
*engineering wisdom and*  
*design philosophy of the*  
*UNIX, Linux, and Open Source*  
*software development*  
*community as it has evolved*  
*over the past three decades,*

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*and as it is applied today by the most experienced programmers. Eric Raymond offers the next generation of "hackers" the unique opportunity to learn the connection between UNIX philosophy and practice through careful case studies of the very best UNIX/Linux programs.*

*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*

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*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*



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*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*
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*Python, 2nd Edition.*

*The use of computation and simulation has become an essential part of the scientific process. Being able to transform a theory into an algorithm requires significant theoretical insight, detailed physical and mathematical understanding, and a working level of competency in programming. This upper-division text provides an unusually broad survey of the topics of modern computational physics from a multidisciplinary, computational science point of view. Its philosophy is rooted in learning by doing (assisted by many model*

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*programs), with new scientific materials as well as with the Python programming language. Python has become very popular, particularly for physics education and large scientific projects. It is probably the easiest programming language to learn for beginners, yet is also used for mainstream scientific computing, and has packages for excellent graphics and even symbolic manipulations. The text is designed for an upper-level undergraduate or beginning graduate course and provides the reader with the essential knowledge to understand computational*

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*tools and mathematical methods well enough to be successful. As part of the teaching of using computers to solve scientific problems, the reader is encouraged to work through a sample problem stated at the beginning of each chapter or unit, which involves studying the text, writing, debugging and running programs, visualizing the results, and the expressing in words what has been done and what can be concluded. Then there are exercises and problems at the end of each chapter for the reader to work on their own (with model programs given for that purpose). The text*

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*could be used for a one-semester course on scientific computing. The relevant topics for that are covered in the first third of the book. The latter two-thirds of the text includes more physics and can be used for a two-semester course in computational physics, covering nonlinear ODEs, Chaotic Scattering, Fourier Analysis, Wavelet Analysis, Nonlinear Maps, Chaotic systems, Fractals and Parallel Computing. The e-book extends the paper version by including many codes, visualizations and applets, as well as links to video lectures. \* A table at the beginning of each*

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*chapter indicates video lectures, slides, applets and animations. \* Applets illustrate the results to be expected for projects in the book, and to help understand some abstract concepts (e.g. Chaotic Scattering) \* The eBook's figures, equations, sections, chapters, index, table of contents, code listings, glossary, animations and executable codes (both Applets and Python programs) are linked, much like in a Web document. \* Some equations are linked to their xml forms (which can be imported into Maple or Mathematica for manipulation). \* The e-book will link to video-based*

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*lecture modules, held by principal author Professor Rubin Landau, that cover most every topic in the book.*

*Explore the mathematical computations and algorithms for image processing using popular Python tools and frameworks. Key Features Practical coverage of every image processing task with popular Python libraries Includes topics such as pseudo-coloring, noise smoothing, computing image descriptors Covers popular machine learning and deep learning techniques for complex image processing tasks Book Description Image processing plays an*



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*important role in our daily lives with various applications such as in social media (face detection), medical imaging (X-ray, CT-scan), security (fingerprint recognition) to robotics & space. This book will touch the core of image processing, from concepts to code using Python. The book will start from the classical image processing techniques and explore the evolution of image processing algorithms up to the recent advances in image processing or computer vision with deep learning. We will learn how to use image processing libraries such as PIL, scikit-mage,*

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*and scipy ndimage in Python. This book will enable us to write code snippets in Python 3 and quickly implement complex image processing algorithms such as image enhancement, filtering, segmentation, object detection, and classification. We will be able to use machine learning models using the scikit-learn library and later explore deep CNN, such as VGG-19 with Keras, and we will also use an end-to-end deep learning model called YOLO for object detection. We will also cover a few advanced problems, such as image inpainting, gradient blending, variational*

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*denoising, seam carving, quilting, and morphing. By the end of this book, we will have learned to implement various algorithms for efficient image processing. What you will learn Perform basic data pre-processing tasks such as image denoising and spatial filtering in Python Implement Fast Fourier Transform (FFT) and Frequency domain filters (e.g., Wiener) in Python Do morphological image processing and segment images with different algorithms Learn techniques to extract features from images and match images Write Python code to*

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*implement supervised / unsupervised machine learning algorithms for image processing Use deep learning models for image classification, segmentation, object detection and style transfer*

*Who this book is for This book is for Computer Vision Engineers, and machine learning developers who are good with Python programming and want to explore details and complexities of image processing. No prior knowledge of the image processing techniques is expected.*

*75 Python automation ideas for web scraping, data wrangling, and processing*

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*Excel, reports, emails, and more, 2nd Edition*

*Practical Programming for Total Beginners*

*Image Classification, Object Detection, and Face*

*Recognition in Python*

*Mastering SciPy*

*Learning Geospatial Analysis with Python*

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***Create succinct and expressive implementations with functional***

***programming in Python Key Features***

***Learn how to choose between***

***imperative and functional approaches based on expressiveness, clarity, and***

***performance Get familiar with complex concepts such as monads,***

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*concurrency, and immutability Apply functional Python to common Exploratory Data Analysis (EDA) programming problems Book Description If you're a Python developer who wants to discover how to take the power of functional programming (FP) and bring it into your own programs, then this book is essential for you, even if you know next to nothing about the paradigm. Starting with a general overview of functional concepts, you'll explore common functional features such as first-class and higher-order functions, pure functions, and more. You'll see how these are accomplished in Python 3.6 to give you the core foundations you'll build upon. After that, you'll discover common functional optimizations for Python to help your apps reach even higher speeds. You'll learn FP*

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*concepts such as lazy evaluation using Python's generator functions and expressions. Moving forward, you'll learn to design and implement decorators to create composite functions. You'll also explore data preparation techniques and data exploration in depth, and see how the Python standard library fits the functional programming model. Finally, to top off your journey into the world of functional Python, you'll at look at the PyMonad project and some larger examples to put everything into perspective. What you will learn Use Python's generator functions and generator expressions to work with collections in a non-strict (or lazy) manner Utilize Python library modules including itertools, functools, multiprocessing, and concurrent features to ensure efficient functional*

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*programs Use Python strings with object-oriented suffix notation and prefix notation Avoid stateful classes with families of tuples Design and implement decorators to create composite functions Use functions such as max(), min(), map(), filter(), and sorted() Write higher-order functions Who this book is for This book is for Python developers who would like to perform Functional programming with Python. Python Programming knowledge is assumed. Introducing modular techniques for building sophisticated programs using Python About This Book The book would help you develop succinct, expressive programs using modular design The book would explain best practices and common idioms through carefully explained and structured examples It will have broad appeal as*



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*far as target audience is concerned and there would be take away for all beginners to Python Who This Book Is For This book is intended for beginner to intermediate level Python programmers who wish to learn how to use modules and packages within their programs. While readers must understand the basics of Python programming, no knowledge of modular programming techniques is required. What You Will Learn Learn how to use modules and packages to organize your Python code Understand how to use the import statement to load modules and packages into your program Use common module patterns such as abstraction and encapsulation to write better programs Discover how to create self-testing Python packages Create reusable modules that other programmers can use Learn how to*

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*use GitHub and the Python Package Index to share your code with other people Make use of modules and packages that others have written Use modular techniques to build robust systems that can handle complexity and changing requirements over time In Detail Python has evolved over the years and has become the primary choice of developers in various fields. The purpose of this book is to help readers develop readable, reliable, and maintainable programs in Python. Starting with an introduction to the concept of modules and packages, this book shows how you can use these building blocks to organize a complex program into logical parts and make sure those parts are working correctly together. Using clearly written, real-world examples, this book demonstrates how you can use*

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*modular techniques to build better programs. A number of common modular programming patterns are covered, including divide-and-conquer, abstraction, encapsulation, wrappers and extensibility. You will also learn how to test your modules and packages, how to prepare your code for sharing with other people, and how to publish your modules and packages on GitHub and the Python Package Index so that other people can use them. Finally, you will learn how to use modular design techniques to be a more effective programmer. Style and approach This book will be simple and straightforward, focusing on imparting learning through a wide array of examples that the readers can put into use as they read through the book. They should not only be able to understand the way modules help in*

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*improving development, but they should also be able to improvise on their techniques of writing concise and effective code.*

*Leverage this example-packed, comprehensive guide for all your Python computational needs*  
*Key Features Learn the first steps within Python to highly specialized concepts*  
*Explore examples and code snippets taken from typical programming situations within scientific computing.*  
*Delve into essential computer science concepts like iterating, object-oriented programming, testing, and MPI presented in strong connection to applications within scientific computing.*  
*Book Description Python has tremendous potential within the scientific computing domain. This updated edition of Scientific Computing with Python features new chapters on*

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*graphical user interfaces, efficient data processing, and parallel computing to help you perform mathematical and scientific computing efficiently using Python. This book will help you to explore new Python syntax features and create different models using scientific computing principles. The book presents Python alongside mathematical applications and demonstrates how to apply Python concepts in computing with the help of examples involving Python 3.8. You'll use pandas for basic data analysis to understand the modern needs of scientific computing, and cover data module improvements and built-in features. You'll also explore numerical computation modules such as NumPy and SciPy, which enable fast access to highly efficient numerical algorithms. By learning to use the plotting module*

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*Matplotlib, you will be able to represent your computational results in talks and publications. A special chapter is devoted to SymPy, a tool for bridging symbolic and numerical computations. By the end of this Python book, you'll have gained a solid understanding of task automation and how to implement and test mathematical algorithms within the realm of scientific computing. What you will learn Understand the building blocks of computational mathematics, linear algebra, and related Python objects Use Matplotlib to create high-quality figures and graphics to draw and visualize results Apply object-oriented programming (OOP) to scientific computing in Python Discover how to use pandas to enter the world of data processing Handle exceptions for writing reliable and usable code Cover manual and*

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*automatic aspects of testing for scientific programming Get to grips with parallel computing to increase computation speed Who this book is for This book is for students with a mathematical background, university teachers designing modern courses in programming, data scientists, researchers, developers, and anyone who wants to perform scientific computation in Python.*

*Learn Python—the fun and easy way—and get in the programming game today! Python is one of the fastest growing programming languages, and no wonder. It requires three to five times less time than developing in Java, is a great building block for learning both procedural and object-oriented programming concepts, and is an ideal language for data analysis. Beginning Programming with*

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*Python For Dummies is the perfect guide to this dynamic and powerful programming language—even if you've never coded before! Author John Paul Mueller draws on his vast programming knowledge and experience to guide you step-by-step through the syntax and logic of programming with Python and provides several real-world programming examples to give you hands-on experience trying out what you've learned. Provides a solid understanding of basic computer programming concepts and helps familiarize you with syntax and logic Explains the fundamentals of procedural and object-oriented programming Shows how Python is being used for data analysis and other applications Includes short, practical programming samples to apply your*



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*skills to real-world programming scenarios Whether you've never written a line of code or are just trying to pick up Python, there's nothing to fear with the fun and friendly Beginning Programming with Python For Dummies leading the way.*

*Python Geospatial Development Essentials*

*Functional Python Programming*

*Web Scraping with Python*

*Modern Computing in Simple Packages*

*Visual QuickStart Guide*

*Transport in the Soil-Plant-Atmosphere System*

*Computational Physics*

***This book provides you with the resources to successfully develop your own GIS application in***

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***Python. The book begins by walking you through the loading and saving of data structures before you start to build the look and feel of your application and create its interactive map window. You'll then move on to managing, editing, and analyzing spatial data from within the application and finish with instructions for packaging the application for distribution. By the end of the book, you should be able to use your GIS application as a***

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***template for further development, with the potential to expand and customize it to suit your needs.***

***Python is a remarkably powerful dynamic programming language that is used in a wide variety of application domains such as Web, database access, desktop GUIs, game and software development, and network programming. Fans of Python use the phrase "batteries included" to describe the standard library, which***

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***covers everything from asynchronous processing to zip files. The language itself is a flexible powerhouse that can handle practically any application domain. This task-based tutorial is for students with no programming experience as well as those programmers who have some experience with the programming language and now want to take their skills to the next level. The book walks a reader through all the fundamentals and then***

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***moves on to more advanced topics. It's a complete end-to-end tutorial and reference. We are visual animals. But before we can see the world in its true splendor, our brains, just like our computers, have to sort and organize raw data, and then transform that data to produce new images of the world. Beginning Python Visualization: Crafting Visual Transformation Scripts, Second Edition discusses turning many types of data sources, big***

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***and small, into useful visual data. And, you will learn Python as part of the bargain. In this second edition you'll learn about Spyder, which is a Python IDE with MATLAB® -like features. Here and throughout the book, you'll get detailed exposure to the growing IPython project for interactive visualization. In addition, you'll learn about the changes in NumPy and Scipy that have occurred since the first edition. Along the way, you'll get many***

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***pointers and a few visual examples. As part of this update, you'll learn about matplotlib in detail; this includes creating 3D graphs and using the basemap package that allows you to render geographical maps. Finally, you'll learn about image processing, annotating, and filtering, as well as how to make movies using Python. This includes learning how to edit/open video files and how to create your own movie, all with Python scripts. Today's big data***

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***and computational scientists, financial analysts/engineers and web developers - like you - will find this updated book very relevant.***

***Portable, powerful, and a breeze to use, Python is the popular open source object-oriented programming language used for both standalone programs and scripting applications. It is now being used by an increasing number of major organizations, including NASA and Google. Updated for***



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***Python 2.4, The Python Cookbook, 2nd Edition offers a wealth of useful code for all Python programmers, not just advanced practitioners. Like its predecessor, the new edition provides solutions to problems that Python programmers face everyday. It now includes over 200 recipes that range from simple tasks, such as working with dictionaries and list comprehensions, to complex tasks, such as monitoring a network and building a templating***

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***system. This revised version also includes new chapters on topics such as time, money, and metaprogramming. Here's a list of additional topics covered: Manipulating text Searching and sorting Working with files and the filesystem Object-oriented programming Dealing with threads and processes System administration Interacting with databases Creating user interfaces Network and web programming Processing XML***

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***Distributed programming  
Debugging and testing  
Another advantage of The  
Python Cookbook, 2nd  
Edition is its trio of  
authors--three well-  
known Python  
programming experts,  
who are highly visible on  
email lists and in  
newsgroups, and speak  
often at Python  
conferences. With scores  
of practical examples and  
pertinent background  
information, The Python  
Cookbook, 2nd Edition is  
the one source you need  
if you're looking to build***

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***efficient, flexible, scalable, and well-integrated systems.***

***Automate the Boring Stuff with Python, 2nd Edition***

***Python Cookbook***

***Crafting Visual***

***Transformation Scripts***

***Python Standard Library***

***High-performance***

***scientific computing with***

***NumPy, SciPy, and***

***pandas***

***Deep Learning for***

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**Get a firm grip on the core processes including**

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browser automation, web scraping, Word, Excel, and GUI automation with Python 3.8 and higher Key Features Automate integral business processes such as report generation, email marketing, and lead generation Explore automated code testing and Python's growth in data science and AI automation in three new chapters Understand techniques to extract information and generate appealing graphs, and reports with Matplotlib Book Description In this updated and extended

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version of Python Automation Cookbook, each chapter now comprises the newest recipes and is revised to align with Python 3.8 and higher. The book includes three new chapters that focus on using Python for test automation, machine learning projects, and for working with messy data. This edition will enable you to develop a sharp understanding of the fundamentals required to automate business processes through real-world tasks, such as developing your first web

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scraping application, analyzing information to generate spreadsheet reports with graphs, and communicating with automatically generated emails. Once you grasp the basics, you will acquire the practical knowledge to create stunning graphs and charts using Matplotlib, generate rich graphics with relevant information, automate marketing campaigns, build machine learning projects, and execute debugging techniques. By the end of this book, you will be proficient in identifying

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monotonous tasks and resolving process inefficiencies to produce superior and reliable systems. What you will learn Learn data wrangling with Python and Pandas for your data science and AI projects Automate tasks such as text classification, email filtering, and web scraping with Python Use Matplotlib to generate a variety of stunning graphs, charts, and maps Automate a range of report generation tasks, from sending SMS and email campaigns to creating



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templates, adding images in Word, and even encrypting PDFs Master web scraping and web crawling of popular file formats and directories with tools like Beautiful Soup Build cool projects such as a Telegram bot for your marketing campaign, a reader from a news RSS feed, and a machine learning model to classify emails to the correct department based on their content Create fire-and-forget automation tasks by writing cron jobs, log files, and regexes with Python scripting Who this

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book is for Python Automation Cookbook - Second Edition is for developers, data enthusiasts or anyone who wants to automate monotonous manual tasks related to business processes such as finance, sales, and HR, among others. Working knowledge of Python is all you need to get started with this book.

Down covers topics such as hardware requirements, troubleshooting, selecting packages, setting up a GUI, networking, partitioning, and more. CD

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contains Debian 2.1.

Step-by-step tutorials on deep learning neural networks for computer vision in python with Keras.

Gather, analyze, and decode data to reveal hidden facts using Python, the perfect tool for all aspiring secret agents

About This Book Discover the essential features of Python programming:

statements, variables, expressions, and many of the built-in data types

Use Python's standard library to do more sophisticated data

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gathering and analysis  
Written by a Python  
programming expert, with  
over 35 years' experience  
as a consultant, teacher,  
author and software  
developer Who This Book Is  
For This book is for  
Secret Agents who have  
some exposure to Python.  
Our focus is on the Field  
Agents who are ready to do  
more sophisticated and  
complex programming in  
Python. We'll stick to  
simple statistics for the  
most part. A steady hand  
with a soldering iron is  
not required, but a  
skilled field agent should

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be able to assemble a working Arduino circuit to gather their own sensor data. What You Will Learn Upgrade Python to the latest version and discover its latest and greatest tools Use Python libraries to extract data from log files that are designed more for people to read than for automated analysis Summarize log files and extract meaningful information Gather data from social networking sites and leverage your experience of analyzing log files to summarize the data you

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find Extract text and images from social networking sites Parse the complex and confusing data structures in a PDF file to extract meaningful text that we can analyze Connect small, intelligent devices to our computer to use them as remote sensors Use Python to analyze measurements from sensors to calibrate them and use sensors efficiently In Detail Python is easy to learn and extensible programming language that allows any manner of secret agent to work with a variety of data. Agents

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from beginners to seasoned veterans will benefit from Python's simplicity and sophistication. The standard library provides numerous packages that move beyond simple beginner missions. The Python ecosystem of related packages and libraries supports deep information processing. This book will guide you through the process of upgrading your Python-based toolset for intelligence gathering, analysis, and communication. You'll explore the ways Python is

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used to analyze web logs to discover the trails of activities that can be found in web and database servers. We'll also look at how we can use Python to discover details of the social network by looking at the data available from social networking websites. Finally, you'll see how to extract history from PDF files, which opens up new sources of data, and you'll learn about the ways you can gather data using an Arduino-based sensor device. Style and approach

Each chapter will include



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a background briefing that covers an essential Python technology. After some in-depth exploration of the features, the chapter will conclude with a mission that is a concrete application of the Python tools and techniques covered.

Document Analysis and Recognition - ICDAR 2021

Python Scripting for Computational Science

Problem Solving with Python

Web Application

Construction Kit

Scientific Computing with Python

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**Image Processing**

**Masterclass with Python**

**Python Automation Cookbook**

*This four-volume set of LNCS 12821, LNCS 12822, LNCS 12823 and LNCS 12824, constitutes the refereed proceedings of the 16th International Conference on Document Analysis and Recognition, ICDAR 2021, held in Lausanne, Switzerland in September 2021. The 182 full papers were carefully reviewed and selected from 340 submissions, and are presented with 13 competition reports. The papers are organized into the following topical sections: scene text*

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*detection and recognition, document classification, gold-standard benchmarks and data sets, historical document analysis, and handwriting recognition. In addition, the volume contains results of 13 scientific competitions held during ICDAR 2021.*

*Implement state-of-the-art techniques to visualize solutions to challenging problems in scientific computing, with the use of the SciPy stack About This Book Master the theory and algorithms behind numerical recipes and how they can be applied to real-world problems Learn to combine the most appropriate built-*

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*in functions from the SciPy stack by understanding the connection between the sources of your problem, volume of data, or computer architecture A comprehensive coverage of all the mathematical techniques needed to solve the presented topics, with a discussion of the relevant algorithms built in the SciPy stack Who This Book Is For If you are a mathematician, engineer, or computer scientist with a proficiency in Python and familiarity with IPython, this is the book for you. Some basic knowledge of numerical methods in scientific computing would*

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*be helpful. What You Will Learn Master relevant algorithms used in symbolic or numerical mathematics to address approximation, interpolation, differentiation, integration, root-finding, and optimization of scalar or multi-variate functions Develop different algorithms and strategies to efficiently store and manipulate large matrices of data, in particular to solve systems of linear equations, or compute their eigenvalues/eigenvectors Understand how to model physical problems with systems of differential equations and distinguish*

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*the factors that dictate the strategies to solve them*  
*Perform statistical analysis, hypothesis test design and resolution, or data mining at a higher level, and apply them to real-life problems in the field of data analysis*  
*Gain insights on the power of distances, Delaunay triangulations and Voronoi diagrams for Computational Geometry, and apply them to various engineering problems*  
*Familiarize yourself with different techniques in signal/image processing, including filtering audio, images, or video to extract information, features, or remove components*  
*In Detail*

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*The SciPy stack is a collection of open source libraries of the powerful scripting language Python, together with its interactive shells. This environment offers a cutting-edge platform for numerical computation, programming, visualization and publishing, and is used by some of the world's leading mathematicians, scientists, and engineers. It works on any operating system that supports Python and is very easy to install, and completely free of charge! It can effectively transform into a data-processing and system-prototyping environment, directly*

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*rivalling MATLAB and Octave. This book goes beyond a mere description of the different built-in functions coded in the libraries from the SciPy stack. It presents you with a solid mathematical and computational background to help you identify the right tools for each problem in scientific computing and visualization. You will gain an insight into the best practices with numerical methods depending on the amount or type of data, properties of the mathematical tools employed, or computer architecture, among other factors. The book kicks off with a concise exploration of the*



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*basics of numerical linear algebra and graph theory for the treatment of problems that handle large data sets or matrices. In the subsequent chapters, you will delve into the depths of algorithms in symbolic algebra and numerical analysis to address modeling/simulation of various real-world problems with functions (through interpolation, approximation, or creation of systems of differential equations), and extract their representing features (zeros, extrema, integration or differentiation). Lastly, you will move on to advanced concepts of data analysis,*

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*image/signal processing, and computational geometry. Style and approach Packed with real-world examples, this book explores the mathematical techniques needed to solve the presented topics, and focuses on the algorithms built in the SciPy stack. Zope is a powerful application server and content management system, but because it is an open-source technology there is a tremendous need for reliable, practical documentation showing developers how to leverage Zope to its fullest. Written by developers at Beehive Electronic Media Inc., one*

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*of the world's leading Zope consulting firms, Zope Web Application Construction Kit provides readers with a practical, straightforward guide -- along with all the needed software -- to setting up and developing powerful Web applications using Zope.*

*Mobile Python is the introduction of Python programming language to the mobile space. This practical hands-on book teaches readers how to realize their application ideas on the Symbian OS. Programming on the Symbian mobile platform has been difficult and time consuming in the past. This innovative new title will*

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*remedy this problem.*

*Chapters deal with topics that are based on Python 5.6.0 features and presented in an order that lets the user learn first the “simple to code” ones and then increasing in complexity.*

*Mining the Social Web*

*Research and Advanced Technology for Digital Libraries*

*Hands-On Genetic Algorithms with Python*

*Python for Secret Agents - Rapid prototyping of applications on the mobile platform*

*16th International Conference, Lausanne, Switzerland, September 5–10, 2021, Proceedings, Part IV*

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*Beginning Programming with Python For Dummies*

**A Concise Introduction to Programming in Python, Second Edition** provides a hands-on and accessible introduction to writing software in Python, with no prior programming experience required. The Second Edition was thoroughly reorganized and rewritten based on classroom experience to incorporate: A spiral approach, starting with turtle graphics, and then revisiting concepts

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in greater depth using numeric, textual, and image data Clear, concise explanations written for beginning students, emphasizing core principles A variety of accessible examples, focusing on key concepts Diagrams to help visualize new concepts New sections on recursion and exception handling, as well as an earlier introduction of lists, based on instructor feedback The text offers sections designed for

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approximately one class period each, and proceeds gradually from procedural to object-oriented design.

Examples, exercises, and projects are included from diverse application domains, including finance, biology, image processing, and textual analysis. It also includes a brief "How-To" sections that introduce optional topics students may be interested in exploring. The text is written to be read, making it a

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good fit in flipped classrooms. Designed for either classroom use or self-study, all example programs and solutions to odd-numbered exercises (except for projects) are available at: <http://www.central.edu/go/conciseintro/>.

If you've mastered Python's fundamentals, you're ready to start using it to get real work done. Programming Python will show you how, with in-depth tutorials on the language's primary



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application domains: system administration, GUIs, and the Web. You'll also explore how Python is used in databases, networking, front-end scripting layers, text processing, and more. This book focuses on commonly used tools and libraries to give you a comprehensive understanding of Python's many roles in practical, real-world programming. You'll learn language syntax and programming techniques in a clear

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and concise manner, with lots of examples that illustrate both correct usage and common idioms. Completely updated for version 3.x, Programming Python also delves into the language as a software development tool, with many code examples scaled specifically for that purpose. Topics include: Quick Python tour: Build a simple demo that includes data representation, object-oriented programming, object persistence,

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GUIs, and website basics  
System programming:  
Explore system interface  
tools and techniques for  
command-line scripting,  
processing files and  
folders, running  
programs in parallel,  
and more GUI  
programming: Learn to  
use Python's tkinter  
widget library Internet  
programming: Access  
client-side network  
protocols and email  
tools, use CGI scripts,  
and learn website  
implementation  
techniques More ways to

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apply Python: Implement data structures, parse text-based information, interface with databases, and extend and embed Python

Mine the rich data tucked away in popular social websites such as Twitter, Facebook, LinkedIn, and Instagram. With the third edition of this popular guide, data scientists, analysts, and programmers will learn how to glean insights from social media—including who's

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connecting with whom, what they're talking about, and where they're located—using Python code examples, Jupyter notebooks, or Docker containers. In part one, each standalone chapter focuses on one aspect of the social landscape, including each of the major social sites, as well as web pages, blogs and feeds, mailboxes, GitHub, and a newly added chapter covering Instagram. Part two provides a cookbook with two dozen bite-size

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recipes for solving particular issues with Twitter. Get a straightforward synopsis of the social web landscape Use Docker to easily run each chapter's example code, packaged as a Jupyter notebook Adapt and contribute to the code's open source GitHub repository Learn how to employ best-in-class Python 3 tools to slice and dice the data you collect Apply advanced mining techniques such as TFIDF, cosine

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similarity, collocation analysis, clique detection, and image recognition Build beautiful data visualizations with Python and JavaScript toolkits

If programming is magic then web scraping is surely a form of wizardry. By writing a simple automated program, you can query web servers, request data, and parse it to extract the information you need. The expanded edition of this

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practical book not only introduces you web scraping, but also serves as a comprehensive guide to scraping almost every type of data from the modern web. Part I focuses on web scraping mechanics: using Python to request information from a web server, performing basic handling of the server's response, and interacting with sites in an automated fashion. Part II explores a variety of more specific



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tools and applications to fit any web scraping scenario you're likely to encounter. Parse complicated HTML pages Develop crawlers with the Scrapy framework Learn methods to store data you scrape Read and extract data from documents Clean and normalize badly formatted data Read and write natural languages Crawl through forms and logins Scrape JavaScript and crawl through APIs Use and write image-to-text software Avoid

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scraping traps and bot blockers Use scrapers to test your website

Tools and algorithms for analyzing images

10th European

Conference, EDCL 2006,

Alicante Spain,

September 17-22, 2006,

Proceedings

Python

NumPy Cookbook – Second Edition

Introducing Python

A Concise Introduction to Programming in Python

50+ Solutions and

Techniques Solving

Complex Digital Image

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## **Processing Challenges Using Numpy, Scipy, Pytorch and Keras (English Edition)**

An innovative reference reveals the many capabilities of the Python Standard Library, which is a compilation of commonly used procedures that can be pasted into a Python script, by providing over 300 real-world example scripts.

Original. (Intermediate/Advanced)

If you are a Python beginner who is looking to learn the language through interesting projects, this book is for you. A basic knowledge of programming and statistics is beneficial to get the most out of the book.

Over 50 problems solved with

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classical algorithms + ML / DL models  
KEY FEATURES Problem-driven approach to practice image processing. Practical usage of popular Python libraries: Numpy, Scipy, scikit-image, PIL and SimpleITK. End-to-end demonstration of popular facial image processing challenges using MTCNN and Microsoft 's Cognitive Vision APIs.

DESCRIPTION This book starts with basic Image Processing and manipulation problems and demonstrates how to solve them with popular Python libraries and modules. It then concentrates on problems based on Geometric image transformations and problems to be solved with Image

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hashing. Next, the book focuses on solving problems based on Sampling, Convolution, Discrete Fourier transform, Frequency domain filtering and image restoration with deconvolution. It also aims at solving Image enhancement problems using different algorithms such as spatial filters and create a super resolution image using SRGAN. Finally, it explores popular facial image processing problems and solves them with Machine learning and Deep learning models using popular python ML / DL libraries.

### WHAT YOU WILL LEARN

Develop strong grip on the fundamentals of Image Processing and Image Manipulation. Solve

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popular Image Processing problems using Machine Learning and Deep Learning models.

Working knowledge on Python libraries including numpy, scipy and scikit-image. Use popular Python Machine Learning packages such as scikit-learn, Keras and pytorch. Live

implementation of Facial Image Processing techniques such as Face Detection / Recognition / Parsing dlib and MTCNN. WHO

THIS BOOK IS FOR This book is designed specially for computer vision users, machine learning engineers, image processing experts who are looking for solving modern image processing/computer vision

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challenges. TABLE OF CONTENTS 1. Chapter 1: Basic Image & Video Processing 2. Chapter 2: More Image Transformation and Manipulation 3. Chapter 3: Sampling, Convolution and Discrete Fourier Transform 4. Chapter 4: Discrete Cosine / Wavelet Transform and Deconvolution 5. Chapter 5: Image Enhancement 6. Chapter 6: More Image Enhancement 7. Chapter 7: Facel Image Processing

This innovative study presents concepts and problems in soil physics, and provides solutions using original computer programs. It provides a close examination of physical environments of soil, including an analysis of the

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movement of heat, water and gases. The authors employ the programming language Python, which is now widely used for numerical problem solving in the sciences. In contrast to the majority of the literature on soil physics, this text focuses on solving, not deriving, differential equations for transport. Using numerical procedures to solve differential equations allows the solution of quite difficult problems with fairly simple mathematical tools. Numerical methods convert differential into algebraic equations, which can be solved using conventional methods of linear algebra. Each chapter introduces a soil physics concept,



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and proceeds to develop computer programs to solve the equations and illustrate the points made in the discussion. Problems at the end of each chapter help the reader practise using the concepts introduced. The text is suitable for advanced undergraduates, graduates and researchers of soil physics. It employs an open source philosophy where computer code is presented, explained and discussed, and provides the reader with a full understanding of the solutions. Once mastered, the code can be adapted and expanded for the user's own models, fostering further developments. The Python tools provide a simple syntax, Object Oriented Programming

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techniques, powerful mathematical and numerical tools, and a user friendly environment.

Programming Python

Python Multimedia

Exploratory Programming for the Arts and Humanities

The Art of UNIX Programming

Artificial Intelligence in Agriculture

Modular Programming with Python

Installing Debian GNU/Linux

*A guide to completing Python projects for those ready to take their skills to the next level Python Projects is the ultimate resource for the Python programmer with basic skills who is ready to move beyond tutorials and start building projects. The preeminent guide to bridge the gap between learning and doing, this book walks readers through the "where" and*

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*"how" of real-world Python programming with practical, actionable instruction. With a focus on real-world functionality, Python Projects details the ways that Python can be used to complete daily tasks and bring efficiency to businesses and individuals alike. Python Projects is written specifically for those who know the Python syntax and lay of the land, but may still be intimidated by larger, more complex projects. The book provides a walk-through of the basic set-up for an application and the building and packaging for a library, and explains in detail the functionalities related to the projects. Topics include: \*How to maximize the power of the standard library modules \*Where to get third party libraries, and the best practices for utilization \*Creating, packaging, and reusing libraries within and across projects \*Building multi-layered*

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*functionality including networks, data, and user interfaces \*Setting up development environments and using virtualenv, pip, and more Written by veteran Python trainers, the book is structured for easy navigation and logical progression that makes it ideal for individual, classroom, or corporate training. For Python developers looking to apply their skills to real-world challenges, Python Projects is a goldmine of information and expert insight. In just 24 lessons of one hour or less, you will be able to build full-featured production websites using Django, the powerful web development framework based on Python. Designed for experienced website developers who have at least some familiarity with the Python programming language, this book uses a straightforward, step-by-step approach. Each lesson builds on the previous ones,*

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*enabling you to learn the essentials of implementing the Django framework on a website from the ground up. Step-by-step instructions carefully walk you through the most common Django tasks. Q&As, quizzes, and exercises at the end of each lesson help you test your knowledge. Notes and tips point out shortcuts and solutions. Learn how to... Install and configure the Django web development framework Cleanly separate data, logic, and view layers Implement site interfaces with build templates and views Utilize templates and views to store, access, and retrieve data Use the Django forms library Define custom tags and filters to minimize coding Secure sites with registration, authorization, logins, and permissions Manage sessions and cookies Implement middleware for request and response handling Create sitemaps to inform search engines of your content*

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*Internationalize your site Optimize performance with caching Deploy Django in multiple configurations Maintain sites with Django's administrator interface*

*Introduction 1 Part I: Creating the Website Framework Hour 1: Understanding Django 7 Hour 2: Creating Your First Website 19 Hour 3: Adding Models and Objects to Your Website 37 Hour 4: Creating the Initial Views 63 Part II: Implementing the Website Interface Hour 5: Using Data from the Database in Views 81 Hour 6: Configuring Web Page Views 103 Hour 7: Implementing Django Templates to Create Custom Views 117 Hour 8: Using Built-in Template Tags to Enhance Views 139 Hour 9: Using Built-in Template Filters to Enhance Views 155 Hour 10: Adding Forms to Views 185 Hour 11: Using Views to Add and Update Data in the Database 209 Hour 12: Utilizing*

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*Generic Views 231 Hour 13: Advanced View Configurations 269 Part III: Implementing a Full-Featured Website Hour 14: Managing Site Users 295 Hour 15: Adding Website Security 313 Hour 16: Managing Sessions and Cookies 333 Hour 17: Customizing Models in the Admin Interface 347 Hour 18: Customizing the Admin Interface 365 Part IV: Implementing Advanced Website Components Hour 19: Implementing Middleware 383 Hour 20: Internationalization and Localization 407 Hour 21: Creating Sitemaps 423 Hour 22: Implementing Multiple Websites 437 Hour 23: Configuring Caching 451 Hour 24: Deploying Django 465 Appendixes Appendix A: Django Resources 477 Appendix B: Django Form Field Objects 481 Appendix C: Formatting Dates and Times 491 Index 493*

*This book is a platform for anyone who*

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*wishes to explore Artificial Intelligence in the field of agriculture from scratch or broaden their understanding and its uses. This book offers a practical, hands-on exploration of Artificial Intelligence, machine learning, deep Learning, computer vision and Expert system with proper examples to understand. This book also covers the basics of python with example so that any anyone can easily understand and utilize artificial intelligence in agriculture field. This book is divided into two parts wherein first part talks about the artificial intelligence and its impact in the agriculture with all its branches and their basics. The second part of the book is purely implementation of algorithms and use of different libraries of machine learning, deep learning and computer vision to build useful and sightful projects in real time which can be very*



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*useful for you to have better understanding of artificial intelligence. After reading this book, the reader will an understanding of what Artificial Intelligence is, where it is applicable, and what are its different branches, which can be useful in different scenarios. The reader will be familiar with the standard workflow for approaching and solving machine-learning problems, and how to address commonly encountered issues. The reader will be able to use Artificial Intelligence to tackle real-world problems ranging from crop health prediction to field surveillance analytics, classification to recognition of species of plants etc.*

*Note: T&F does not sell or distribute the hardback in India, Pakistan, Nepal, Bhutan, Bangladesh and Sri Lanka. This title is co-published with NIPA.*

*A practical guide, this book provides step-by-step instructions for developing*

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*multimedia applications, showcasing real world examples throughout. This book is for Python developers who want to dip their toes into working with images, animations, audio and video processing using Python.*

*Python for Secret Agents*

*Discover the power of functional programming, generator functions, lazy evaluation, the built-in itertools library, and monads, 2nd Edition*

*Expert techniques for advanced image analysis and effective interpretation of image data*

*Beginning Python Visualization*

*Data Mining Facebook, Twitter, LinkedIn, Instagram, GitHub, and More*

Annotation With 'Introducing Python', Bill Lubanovic brings years of knowledge as a programmer, system administrator and author to a book of impressive

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depth that's fun to read and simple enough for non-programmers to use. Along with providing a strong foundation in the language itself, Lubanovic shows you how to use Python for a range of applications in business, science and the arts, drawing on the rich collection of open source packages developed by Python fans.

This book constitutes the refereed proceedings of the 10th European Conference on Research and Advanced Technology for Digital Libraries, ECDL 2006. The book presents 36 revised full papers together with the extended abstracts of 18 demo papers and 15 revised poster papers. The papers are organized in topical sections on architectures, preservation, retrieval,

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applications, methodology, metadata, evaluation, user studies, modeling, audiovisual content, and language technologies.

Explore the ever-growing world of genetic algorithms to solve search, optimization, and AI-related tasks, and improve machine learning models using Python libraries such as DEAP, scikit-learn, and NumPy

**Key Features** Explore the ins and outs of genetic algorithms with this fast-paced guide Implement tasks such as feature selection, search optimization, and cluster analysis using Python Solve combinatorial problems, optimize functions, and enhance the performance of artificial intelligence applications

**Book Description** Genetic algorithms are a family of search, optimization, and learning

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algorithms inspired by the principles of natural evolution. By imitating the evolutionary process, genetic algorithms can overcome hurdles encountered in traditional search algorithms and provide high-quality solutions for a variety of problems. This book will help you get to grips with a powerful yet simple approach to applying genetic algorithms to a wide range of tasks using Python, covering the latest developments in artificial intelligence. After introducing you to genetic algorithms and their principles of operation, you'll understand how they differ from traditional algorithms and what types of problems they can solve. You'll then discover how they can be applied to search and optimization problems, such as

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planning, scheduling, gaming, and analytics. As you advance, you'll also learn how to use genetic algorithms to improve your machine learning and deep learning models, solve reinforcement learning tasks, and perform image reconstruction. Finally, you'll cover several related technologies that can open up new possibilities for future applications. By the end of this book, you'll have hands-on experience of applying genetic algorithms in artificial intelligence as well as in numerous other domains. What you will learn

Understand how to use state-of-the-art Python tools to create genetic algorithm-based applications Use genetic algorithms to optimize functions and solve planning and scheduling

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problems Enhance the performance of machine learning models and optimize deep learning network architecture Apply genetic algorithms to reinforcement learning tasks using OpenAI Gym Explore how images can be reconstructed using a set of semi-transparent shapes Discover other bio-inspired techniques, such as genetic programming and particle swarm optimization Who this book is for This book is for software developers, data scientists, and AI enthusiasts who want to use genetic algorithms to carry out intelligent tasks in their applications. Working knowledge of Python and basic knowledge of mathematics and computer science will help you get the most out of this book.

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A book for anyone who wants to learn programming to explore and create, with exercises and projects to help the reader learn by doing. This book introduces programming to readers with a background in the arts and humanities; there are no prerequisites, and no knowledge of computation is assumed. In it, Nick Montfort reveals programming to be not merely a technical exercise within given constraints but a tool for sketching, brainstorming, and inquiring about important topics. He emphasizes programming's exploratory potential—its facility to create new kinds of artworks and to probe data for new ideas. The book is designed to be read alongside the computer, allowing readers to program while making



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their way through the chapters. It offers practical exercises in writing and modifying code, beginning on a small scale and increasing in substance. In some cases, a specification is given for a program, but the core activities are a series of “ free projects, ” intentionally underspecified exercises that leave room for readers to determine their own direction and write different sorts of programs. Throughout the book, Montfort also considers how computation and programming are culturally situated—how programming relates to the methods and questions of the arts and humanities. The book uses Python and Processing, both of which are free software, as the primary programming languages.