

Practical Maya Programming With Python

Python is an easy to learn, powerful programming language. It has efficient high-level data structures and a simple but effective approach to object-oriented programming. Python's elegant syntax and dynamic typing, together with its interpreted nature, make it an ideal language for scripting and rapid application development in many areas on most platforms. The Python interpreter and the extensive standard library are freely available in source or binary form for all major platforms from the Python Web site, <https://www.python.org/>, and may be freely distributed. The same site also contains distributions of and pointers to many free third party Python modules, programs and tools, and additional documentation. The Python interpreter is easily extended with new functions and data types implemented in C or C++ (or other languages callable from C). Python is also suitable as an extension language for customizable applications. This tutorial introduces the reader informally to the basic concepts and features of the python language and system. It helps to have a Python interpreter handy for hands-on experience, but all examples are self contained, so the tutorial can be read off-line as well. For a description of standard objects and modules, see [library-index](#). [reference-index](#) gives a more formal definition of the language. To write extensions in C or C++, read [extending-index](#) and [c-api-index](#). There are also several

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books covering Python in depth. This tutorial does not attempt to be comprehensive and cover every single feature, or even every commonly used feature. Instead, it introduces many of Python's most noteworthy features, and will give you a good idea of the language's flavor and style. After reading it, you will be able to read and write Python modules and programs, and you will be ready to learn more about the various Python library modules described in library-index. The Glossary is also worth going through.

Trying to learn Maya programming from the documentation can be daunting whether or not you are a programmer. The first edition of MEL Scripting for Maya Animators earned the reputation as the best introductory book on MEL, Maya's scripting language. Now fully revised and updated, the second edition also includes new features, such as a discussion of global procedures, new chapters on fixing programming bottlenecks, advanced user interface techniques, and optimizing character rigs. New chapters on utility nodes and Maya's Web Panel feature provide new ideas on how to use MEL in applications. This new edition has kept the popular style of the first edition that offered very clear explanations of programming concepts to those without programming experience. A generous collection of code examples and Maya scene files is included on the companion Web site. This is a book for animators, artists, game developers, visual effects developers, and technical directors who want to learn the fundamentals of Maya, how to automate tasks, personalize user interfaces, build custom tools, and solve problems with

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MEL. Fully updated with several new chapters. Profusely illustrated and includes a companion Web site with numerous code examples and scene files. The authors bring their extensive experience in professional production studios to provide expert guidance.

Master the development of 2D games by learning to use the powerful GameMaker Language and tools provided by the GameMaker: Studio workspace and engine!

About This Book Rapidly develop games using the powerful yet easy easy-to to-use GameMaker: Studio engine Comprehensive: This is a comprehensive guide to help you learn and implement GameMaker's features.

Go through step-by-step tutorials to design and develop unique games Who This Book Is For If you have at least some basic programming experience of JavaScript or any other C-like languages, then this book will be great for you. No experience beyond that is assumed. If you

have no game development experience and are looking for a hobby, are an experienced game developer looking to master some advanced features, or fit anywhere in that spectrum, then you will find GameMaker: Studio and this book to be very useful in helping you create exciting games. What You Will Learn Understand the

GameMaker: Studio interface and tools to quickly create the various assets used in your games Translate some of the GameMaker: Studio drag and drop functions to the GameMaker language Create games with random

elements for exciting gameplay Use the basic GameMaker file I/O and encryption systems Utilize the GameMaker networking functions to create multiplayer games Give AI routines to your enemies to make

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challenging gameplay Create particle systems to give your game exciting graphics Understand the various debugging techniques available in GameMaker: Studio In Detail This book is excellent resource for developers with any level of experience of GameMaker. At the start, we'll provide an overview of the basic use of GameMaker: Studio, and show you how to set up a basic game where you handle input and collisions in a top-down perspective game. We continue on to showcase its more advanced features via six different example projects. The first example game demonstrates platforming with file I/O, followed by animation, views, and multiplayer networking. The next game illustrates AI and particle systems, while the final one will get you started with the built-in Box2D physics engine. By the end of this book, you have mastered lots of powerful techniques that can be utilized in various 2D games. Style and approach A This step-by-step guide that follows and with details ons different topics throughout the creation of various examples.

Step-by-step instruction on writing your first production-ready servers with Golang Google's Go language, otherwise known as Golang, is a fast, simple, and reliable language that is rapidly becoming a highly popular choice for developers of all kinds. With particular utility in cloud-native environments, Golang is being adopted in major projects like Docker and Ethereum thanks to its user-friendly features, like concurrency and easy deployment. In Practical Golang: Building Scalable Network and Non-Network Applications, expert coder and devops engineer Amit Saha delivers a step-by-step

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guide to writing production-ready HTTP 1.1, HTTP2, RPC, and TCP/UDP servers. Walking you through the entire process of learning this already straightforward language, from your first application to your first deployed server, the authors rely solely on the most popular open-source projects to ensure you can apply the book's advice in any cloud environment. In this book, you'll get:

- Fulsome descriptions of best practices on load balancing, scaling, and failure handling
- Stepwise guidance on writing an HTTP service from scratch using only Golang's standard library
- Easy tutorials on implementing RPC and HTTP interfaces for RPC services
- Straightforward instructions on using SQL databases

Perfect for software developers, devops engineers, and other programming professionals, Practical Golang is also an indispensable resource for anyone who wants to go beyond the basics of Golang and deploy robust and practical servers.

Over 60 recipes to help you design interactive, smart, and cross-platform GUI applications

Key Features

- Get succinct QT solutions to pressing GUI programming problems in Python
- Learn how to effectively implement reactive programming
- Build customized applications that are robust and reliable

Book Description

PyQt is one of the best cross-platform interface toolkits currently available; it's stable, mature, and completely native. If you want control over all aspects of UI elements, PyQt is what you need. This book will guide you through every concept necessary to create fully functional GUI applications using PyQt, with only a few lines of code. As you expand your GUI using more widgets, you will cover

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networks, databases, and graphical libraries that greatly enhance its functionality. Next, the book guides you in using Qt Designer to design user interfaces and implementing and testing dialogs, events, the clipboard, and drag and drop functionality to customize your GUI. You will learn a variety of topics, such as look and feel customization, GUI animation, graphics rendering, implementing Google Maps, and more. Lastly, the book takes you through how Qt5 can help you to create cross-platform apps that are compatible with Android and iOS. You will be able to develop functional and appealing software using PyQt through interesting and fun recipes that will expand your knowledge of GUIs

What you will learn

- Use basic Qt components, such as a radio button, combo box, and sliders
- Use QSpinBox and sliders to handle different signals generated on mouse clicks
- Work with different Qt layouts to meet user interface requirements
- Create custom widgets and set up customizations in your GUI
- Perform asynchronous I/O operations and thread handling in the Python GUI
- Employ network concepts, internet browsing, and Google Maps in UI
- Use graphics rendering and implement animation in your GUI
- Make your GUI application compatible with Android and iOS devices

Who this book is for

If you're an intermediate Python programmer wishing to enhance your coding skills by writing powerful GUIs in Python using PyQt, this is the book for you. Whether for big budget films and game productions or lower budget TV and Internet content, creating flexible and believable character rigs is an essential skill required to bring any 3D animation to life. As the leading software

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used for cutting-edge animation, Maya has an established rigging toolset for creating realistic character controls. Traditionally, however, the process of manually building custom rigs in the software interface has been time-consuming and expensive for those who want to produce high-quality 3D characters. Now for the first time and from the author of the best-seller, *Maya Character Creation*, comes an in-depth guide on how the pros are using MEL (Maya Embedded Language) scripting to streamline and automate the rigging process. With *MEL Scripting a Character Rig in Maya*, you'll learn how you can build custom character rigs in a matter of seconds, as opposed to days or weeks. In this detailed guide, you'll learn:

- The techniques used to build a complex character rig in the software interface, followed by instructions for writing the equivalent MEL code for scripting the entire process.
- Fundamental concepts of creating animation controls in Maya, from the basics of creating, editing, and binding skeletons, to more complex rigs with controls that employ spline IK and channel connections.
- Important coding techniques such as using conditional statements, loops, variables, and procedures.
- How to create a character animation GUI (Graphical User Interface) that makes animating the character easy and fast.
- Important skills for building rigs using numerous hands-on exercises, all code examples and Maya files available on the companion Web site.

Learn OpenGL will teach you the basics, the intermediate, and tons of advanced knowledge, using modern (core-profile) OpenGL. The aim of this book is to

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show you all there is to modern OpenGL in an easy-to-understand fashion, with clear examples and step-by-step instructions, while also providing a useful reference for later studies.

The easy way to learn programming fundamentals with Python Python is a remarkably powerful and dynamic programming language that's used in a wide variety of application domains. Some of its key distinguishing features include a very clear, readable syntax, strong introspection capabilities, intuitive object orientation, and natural expression of procedural code. Plus, Python features full modularity, supporting hierarchical packages, exception-based error handling, and modules easily written in C, C++, Java, R, or .NET languages, such as C#. In addition, Python supports a number of coding styles that include: functional, imperative, object-oriented, and procedural. Due to its ease of use and flexibility, Python is constantly growing in popularity—and now you can wear your programming hat with pride and join the ranks of the pros with the help of this guide. Inside, expert author John Paul Mueller gives a complete step-by-step overview of all there is to know about Python. From performing common and advanced tasks, to collecting data, to interacting with package—this book covers it all! Use Python to create and run your first application Find out how to troubleshoot and fix errors Learn to work with Anaconda and use Magic Functions Benefit from completely updated and revised information since the last edition If you've never used Python or are new to programming in general, *Beginning Programming with Python For Dummies* is a helpful resource that will

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set you up for success.

Based on the authors' market leading data structures books in Java and C++, this textbook offers a comprehensive, definitive introduction to data structures in Python by authoritative authors. Data Structures and Algorithms in Python is the first authoritative object-oriented book available for the Python data structures course. Designed to provide a comprehensive introduction to data structures and algorithms, including their design, analysis, and implementation, the text will maintain the same general structure as Data Structures and Algorithms in Java and Data Structures and Algorithms in C++. Every production is built on the backbone of the pipeline. While a functional and flexible pipeline can't assure a successful project, a weak pipeline can guarantee its demise. A solid pipeline produces a superior product in less time and with happier artists who can remain creative throughout the grueling production schedule. Walk through the foundational layers of the production pipeline, including IT infrastructure, software development practices and deployment policies, asset management, shot management, and rendering management. Production Pipeline Fundamentals for Film and Games will teach you how to direct limited resources to the right technological initiatives, getting the most for every dollar spent. Learn how to prepare for and manage all aspects of the pipeline

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with this entirely unique, one-of-a-kind guide. Expand your knowledge with real-world pipeline secrets handed to you by a stellar group of professionals from across the globe. Visit the companion website for even further resources on the pipeline.

Practical Maya Programming with Python is a practical tutorial packed with plenty of examples and sample projects which guides you through building reusable, independent modules and handling unexpected errors. If you are a developer looking to build a powerful system using Python and Maya's capabilities, then this book is for you. Practical Maya Programming with Python is perfect for intermediate users with basic experience in Python and Maya who want to better their knowledge and skills.

Looking for a reliable way to learn how to program on your own, without being overwhelmed by confusing concepts? Head First Programming introduces the core concepts of writing computer programs -- variables, decisions, loops, functions, and objects -- which apply regardless of the programming language. This book offers concrete examples and exercises in the dynamic and versatile Python language to demonstrate and reinforce these concepts. Learn the basic tools to start writing the programs that interest you, and get a better understanding of what software can (and cannot) do. When you're finished, you'll have the necessary

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foundation to learn any programming language or tackle any software project you choose. With a focus on programming concepts, this book teaches you how to: Understand the core features of all programming languages, including: variables, statements, decisions, loops, expressions, and operators Reuse code with functions Use library code to save time and effort Select the best data structure to manage complex data Write programs that talk to the Web Share your data with other programs Write programs that test themselves and help you avoid embarrassing coding errors We think your time is too valuable to waste struggling with new concepts. Using the latest research in cognitive science and learning theory to craft a multi-sensory learning experience, Head First Programming uses a visually rich format designed for the way your brain works, not a text-heavy approach that puts you to sleep.

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 "how" of real-world Python programming with practical, actionable instruction. With a focus on real-world functionality, Python

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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 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.

Based on the latest version of the language, this book offers a self-contained, concise and coherent introduction to programming with Python. The book's primary focus is on realistic case study applications of Python. Each practical example is

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accompanied by a brief explanation of the problem-terminology and concepts, followed by necessary program development in Python using its constructs, and simulated testing. Given the open and participatory nature of development, Python has a variety of incorporated data structures, which has made it difficult to present it in a coherent manner. Further, some advanced concepts (super, yield, generator, decorator, etc.) are not easy to explain. The book specially addresses these challenges; starting with a minimal subset of the core, it offers users a step-by-step guide to achieving proficiency. There are many distinct pleasures associated with computer programming. Craftsmanship has its quiet rewards, the satisfaction that comes from building a useful object and making it work. Excitement arrives with the flash of insight that cracks a previously intractable problem. The spiritual quest for elegance can turn the hacker into an artist. There are pleasures in parsimony, in squeezing the last drop of performance out of clever algorithms and tight coding. The games, puzzles, and challenges of problems from international programming competitions are a great way to experience these pleasures while improving your algorithmic and coding skills. This book contains over 100 problems that have appeared in previous programming contests, along with discussions of the theory and ideas necessary to attack them. Instant online

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grading for all of these problems is available from two WWW robot judging sites. Combining this book with a judge gives an exciting new way to challenge and improve your programming skills. This book can be used for self-study, for teaching innovative courses in algorithms and programming, and in training for international competition. The problems in this book have been selected from over 1,000 programming problems at the Universidad de Valladolid online judge. The judge has ruled on well over one million submissions from 27,000 registered users around the world to date. We have taken only the best of the best, the most fun, exciting, and interesting problems available.

Helps readers develop a solid foundation in programming, teaching concepts that can be used with any modern programming language, covering such topics as text editors, build tools, programming standards, regular expressions, and debugging. Whether you're a novice or an advanced practitioner, you'll find this refreshed book more than lives up to its reputation. Programming Python, Third Edition teaches you the right way to code. It explains Python language syntax and programming techniques in a clear and concise manner, with numerous examples that illustrate both correct usage and common idioms. By reading this comprehensive guide, you'll learn how to apply Python in real-world problem domains such as:

PsychoPy is an open-source (free) software package for

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creating rich, dynamic experiments in psychology, neuroscience and linguistics. It provides an intuitive graphical interface (the “Builder”) as well as the option to insert Python code. This combination makes it easy enough for teaching, but also flexible enough for all manner of behavioural experiments. As a result, PsychoPy has become the software package of choice in psychology departments at universities all over the world. Divided into three parts and with unique learning features to guide readers at whatever level they are at, this textbook is suitable for teaching practical undergraduate classes on research methods, or as a reference text for the professional scientist. The book is written by Jonathan Peirce, the original creator of PsychoPy and Michael MacAskill who have utilised their breadth of experience in Python development to educate students and researchers in this intuitive, yet powerful, experiment generation package.

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

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exist.

Of all the Ajax-specific frameworks that have popped up in recent years, one clearly stands out as the industrial strength solution. Dojo is not just another JavaScript toolkit—it's the JavaScript toolkit—and Dojo: The Definitive Guide demonstrates how to tame Dojo's extensive library of utilities so that you can build rich and responsive web applications like never before. Dojo founder Alex Russell gives a foreword that explains the "why" of Dojo and of this book. Dojo provides an end-to-end solution for development in the browser, including everything from the core JavaScript library and turnkey widgets to build tools and a testing framework. Its vibrant open source community keeps adding to Dojo's arsenal, and this book provides an ideal companion to Dojo's official documentation. Dojo: the Definitive Guide gives you the most thorough overview of this toolkit available, showing you everything from how to create complex layouts and form controls closely resembling those found in the most advanced desktop applications with stock widgets, to advanced JavaScript idioms to AJAX and advanced communication transports. With this definitive reference you get:

- Get a concise introduction to Dojo that's good for all 1.x versions
- Well-explained examples, with scores of tested code samples, that let you see Dojo in action
- A comprehensive reference to Dojo's standard JavaScript library (including fundamental utilities in Base, Dojo's tiny but powerful kernel) that you'll wonder how you ever lived without
- An extensive look at additional Core features, such as animations, drag-and-drop, back-button handling, animations like wipe and slide, and

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more Exhaustive coverage of out-of-the-box Dijits (Dojo widgets) as well as definitive coverage on how to create your own, either from scratch or building on existing ones An itemized inventory of DojoX subprojects, the build tools, and the DOH, Dojo's unit-testing framework that you can use with Dojo—or anywhere else If you're a DHTML-toting web developer, you need to read this book—whether you're a one-person operation or part of an organization employing scores of developers. Dojo packs the standard JavaScript library you've always wanted, and Dojo: The Definitive Guide helps you transform your ideas into working applications quickly by leveraging design concepts you already know.

Master complex workflows and conquer the world with Python and Maya About This Book Improve your modelling skills and reduce your scripting problems using Python in Maya Learn to communicate with web applications using Python for easier team development A quick and practical answer to every problem you can have whilst scripting in Maya with Python Who This Book Is For This book is for Python developers who have just started scripting with Maya. What You Will Learn Find out how to use Python scripting to automate tedious tasks Create functional user interfaces to make scripts easy to share with others Add new functionality to Maya via the power of scripting Import and export arbitrary data into and out of Maya Improve your workflow, and that of your team Create custom create custom controls to make rigs that are easy to work with Implement a system to render 3D assets for isometric games Use script jobs to trigger actions automatically in response to

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user interaction Open a command port to allow other applications to communicate with Maya In Detail Maya is a 3D graphics and animation software, used to develop interactive 3D applications and games with stupendous visual effects. The Maya Programming with Python Cookbook is all about creating fast, powerful automation systems with minimum coding using Maya Python. With the help of insightful and essential recipes, this book will help you improve your modelling skills. Expand your development options and overcome scripting problems encountered whilst developing code in Maya. Right from the beginning, get solutions to complex development concerns faced when implementing as parts of build.

Style and approach This book is comprised of a set of practical recipes, grouped under specific topics, which can be referred to independently or in sequence. These recipes provide quick solutions to common problems, and cover most of the real-world scenarios that developers are likely to face when working with Maya. Google and YouTube use Python because it's highly adaptable, easy to maintain, and allows for rapid development. If you want to write high-quality, efficient code that's easily integrated with other languages and tools, this hands-on book will help you be productive with Python quickly -- whether you're new to programming or just new to Python. It's an easy-to-follow self-paced tutorial, based on author and Python expert Mark Lutz's popular training course. Each chapter contains a stand-alone lesson on a key component of the language, and includes a unique Test Your Knowledge section with practical exercises and quizzes, so you can practice new

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skills and test your understanding as you go. You'll find lots of annotated examples and illustrations to help you get started with Python 3.0. Learn about Python's major built-in object types, such as numbers, lists, and dictionaries Create and process objects using Python statements, and learn Python's general syntax model Structure and reuse code using functions, Python's basic procedural tool Learn about Python modules: packages of statements, functions, and other tools, organized into larger components Discover Python's object-oriented programming tool for structuring code Learn about the exception-handling model, and development tools for writing larger programs Explore advanced Python tools including decorators, descriptors, metaclasses, and Unicode processing

David Gould's acclaimed first book, *Complete Maya Programming: An Extensive Guide to MEL and the C++ API*, provides artists and programmers with a deep understanding of the way Maya works and how it can be enhanced and customized through programming. In his new book David offers a gentle, intuitive introduction to the core ideas of computer graphics. Each concept is explained progressively and is fully implemented in both MEL and C++ so that an artist or programmer can use the source code directly in their own programs.

Geometry and modeling are covered in detail with progressively more complex examples demonstrating all of Maya's possible programming features. David Gould's first volume is widely regarded as the most authoritative reference on Maya programming. Volume II continues this tradition and provides an unmatched guide for the

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artist and programmer tackling complex tasks. Covers a spectrum of topics in computer graphics including points and vectors, rotations, transformations, curves and surfaces (polygonal, NURBS, subdivision), and modeling. Offers insights to Maya's inner workings so that an artist or programmer can design and develop customized tools and solutions. Discusses problem solving with MEL (Maya's scripting language) and the more powerful and versatile C++ API, with plenty of code examples for each. Practical Maya Programming with Python Packt Publishing Ltd

Master the art of writing beautiful and powerful Python by using all of the features that Python 3.5 offers. About This Book Become familiar with the most important and advanced parts of the Python code style. Learn the trickier aspects of Python and put it in a structured context for deeper understanding of the language. Offers an expert's-eye overview of how these advanced tasks fit together in Python as a whole along with practical examples. Who This Book Is For Almost anyone can learn to write working script and create high quality code but they might lack a structured understanding of what it means to be 'Pythonic'. If you are a Python programmer who wants to code efficiently by getting the syntax and usage of a few intricate Python techniques exactly right, this book is for you. What You Will Learn Create a virtualenv and start a new project. Understand how and when to use the functional programming paradigm. Get familiar with the different ways the decorators can be written in. Understand the power of generators and coroutines without digressing into lambda calculus. Create metaclasses and how it makes working with Python far easier. Generate HTML documentation out of documents and code using Sphinx. Learn how to track and optimize application performance,

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both memory and cpu Use the multiprocessing library, not just locally but also across multiple machines Get a basic understanding of packaging and creating your own libraries/applications In Detail Python is a dynamic programming language. It is known for its high readability and hence it is often the first language learned by new programmers. Python being multi-paradigm, it can be used to achieve the same thing in different ways and it is compatible across different platforms. Even if you find writing Python code easy, writing code that is efficient, easy to maintain, and reuse is not so straightforward. This book is an authoritative guide that will help you learn new advanced methods in a clear and contextualised way. It starts off by creating a project-specific environment using venv, introducing you to different Pythonic syntax and common pitfalls before moving on to cover the functional features in Python. It covers how to create different decorators, generators, and metaclasses. It also introduces you to functools.wraps and coroutines and how they work. Later on you will learn to use asyncio module for asynchronous clients and servers. You will also get familiar with different testing systems such as py.test, doctest, and unittest, and debugging tools such as Python debugger and faulthandler. You will learn to optimize application performance so that it works efficiently across multiple machines and Python versions. Finally, it will teach you how to access C functions with a simple Python call. By the end of the book, you will be able to write more advanced scripts and take on bigger challenges. Style and Approach This book is a comprehensive guide that covers advanced features of the Python language, and communicate them with an authoritative understanding of the underlying rationale for how, when, and why to use them.

This book will show you how to use Python to create graphic objects for technical illustrations and data visualization. Often,

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the function you need to produce the image you want cannot be found in a standard Python library. Knowing how to create your own graphics will free you from the chore of looking for a function that may not exist or be difficult to use. This book will give you the tools to eliminate that process and create and customize your own graphics to satisfy your own unique requirements. Using basic geometry and trigonometry, you will learn how to create math models of 2D and 3D shapes. Using Python, you will then learn how to project these objects onto the screen of your monitor, translate and rotate them in 2D and 3D, remove hidden lines, add shading, view in perspective, view intersections between surfaces, and display shadows cast from one object onto another. You will also learn how to visualize and analyze 2D and 3D data sets, fit lines, splines and functions. The final chapter includes demonstrations from quantum mechanics, astronomy and climate science. Includes Python programs written in a clear and open style with detailed explanation of the code. What You Will Learn How to create math and Python models of 2D and 3D shapes. How to rotate, view in perspective, shade, remove hidden lines, display projected shadows, and more. How to analyze and display data sets as curves and surfaces, fit lines and functions. Who This Book Is For Python developers, scientists, engineers, and students using Python to produce technical illustrations, display and analyze data sets. Assumes familiarity with vectors, matrices, geometry and trigonometry.

"David Gould is an expert at using, programming, and teaching Maya, and it shows. People who need to program Maya will find this book essential. Even Maya users who don't intend to do extensive programming should read this book for a better understanding of what's going on under the hood. Compact yet thorough, it covers both MEL and the C++ API, and is written to be informative for both novice and expert

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programmers. Highly recommended!" -Larry Gritz, Exluna/NVIDIA, co-author of *Advanced RenderMan: Creating CGI for Motion Pictures* "This book should be required reading for all Maya programmers, novice and expert alike. For the novice, it provides a thorough and wonderfully well thought-out hands-on tutorial and introduction to Maya. The book's greatest contribution, however, is that in it David shares his deep understanding of Maya's fundamental concepts and architecture, so that even the expert can learn to more effectively exploit Maya's rich and powerful programming interfaces." -Philip J. Schneider, Disney Feature Animation, co-author of *Geometric Tools for Computer Graphics* "Having provided a technical review of David Gould's *Complete Maya Programming*, I must say that this book is the definitive text for scripting and plug-in development for Maya. Never before has there been such a concise and clearly written guide to programming for Maya. Any user smart enough to pick up this book would be better off for it." -Chris Rock, a Technical Director at "a Large Animation Studio in Northern California" "If you ever wanted to open the Maya toolbox, this is your guide. With clear step-by-step instructions, you will soon be able to customize and improve the application, as well as create your own extensions, either through the MEL scripting language or the full C++ API." -Christophe Hery, Industrial Light & Magic

Learning Maya, the world's leading 3D animation and effects package, is a challenge, especially for those who want to master Maya's versatile programming features in addition to its built-in tools. Finally, here is a practical, step-by-step guide that shows how to use Maya to its fullest potential, beginning with the basics. Readers of *Complete Maya Programming* will first gain a thorough understanding of Maya's inner workings, and then learn how to customize and extend Maya with scripts and plugins that take control and productivity to new

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levels. Users new to programming can apply Maya's easy scripting language MEL (Maya Embedded Language), while more advanced users can work with the C++ API (Application Programming Interface). Both a fundamental tutorial for Maya beginners and a solid reference for experienced developers, Complete Maya Programming is every user's guide to Maya mastery. FEATURES: *Demonstrates how to use MEL to control Maya, customize its interface, automate procedures, and more *Details how to use the C++ API to modify Maya functionality and develop tools and features to meet any need *Explains when to use MEL, when to use the C++ API, and how to use them together *Provides a multitude of real-world examples illustrating applications of Maya programming *Ideal for technical directors, developers, or anyone wishing to master Maya *Provides a storehouse of MEL scripts and C++ source code, glossary, and list of resources, available at www.davidgould.com

Learn Autodesk Maya from an award-winning insider Best-selling author, visual effects supervisor, and technical educator Dariush Derakhshani brings you a newly-updated, step-by-step guide to the most popular and complex 3D application on the market, Autodesk Maya. Introducing Autodesk Maya 2015 includes straightforward lessons, real-world examples, detailed tutorials, and downloadable project files that get you modeling and animating your own digital models and scenes right away. The book starts you with the latest CG concepts and production workflows, and then shows you how to create a solar system to help get you acquainted with the basic tool set in Maya. From there, the books helps you: Learn the Maya user interface, including menus and plug-ins Build simple animations and 3D images right away Explore polygons, modeling, and NEX tools Get started with HDRI lighting, rendering, dynamics, simulations, and effects Whether you're new to 3D or migrating from

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another 3D application, Introducing Autodesk Maya 2015 will kick-start your creativity and get you up and running with Maya. Author Derakhshani has worked on movies such as The Fantastic Four and Pan's Labyrinth, the South Park TV series, and numerous commercials and music videos. Discover how to use the CryENGINE 3 free SDK, the next-generation real-time game development tool.

Python makes machine learning easy for beginners and experienced developers With computing power increasing exponentially and costs decreasing at the same time, there is no better time to learn machine learning using Python.

Machine learning tasks that once required enormous processing power are now possible on desktop machines. However, machine learning is not for the faint of heart—it requires a good foundation in statistics, as well as programming knowledge. Python Machine Learning will help coders of all levels master one of the most in-demand programming skillsets in use today. Readers will get started by following fundamental topics such as an introduction to Machine Learning and Data Science. For each learning algorithm, readers will use a real-life scenario to show how Python is used to solve the problem at hand.

- Python data science—manipulating data and data visualization
- Data cleansing
- Understanding Machine learning algorithms
- Supervised learning algorithms
- Unsupervised learning algorithms
- Deploying machine learning models

Python Machine Learning is essential reading for students, developers, or anyone with a keen interest in taking their coding skills to the next level.

JavaScript is the native language of the Internet. Originally created to make web pages more dynamic, it is now used for software projects of all kinds, including scientific visualization and data services. However, most data scientists have little or no experience with JavaScript, and most introductions to the

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language are written for people who want to build shopping carts rather than share maps of coral reefs. This book will introduce you to JavaScript's power and idiosyncrasies and guide you through the key features of the language and its tools and libraries. The book places equal focus on client- and server-side programming, and shows readers how to create interactive web content, build and test data services, and visualize data in the browser. Topics include: The core features of modern JavaScript Creating templated web pages Making those pages interactive using React Data visualization using Vega-Lite Using Data-Forge to wrangle tabular data Building a data service with Express Unit testing with Mocha All of the material is covered by the Creative Commons Attribution-Noncommercial 4.0 International license (CC-BY-NC-4.0) and is included in the book's companion website at <http://js4ds.org> . Maya Gans is a freelance data scientist and front-end developer by way of quantitative biology. Toby Hodges is a bioinformatician turned community coordinator who works at the European Molecular Biology Laboratory. Greg Wilson co-founded Software Carpentry, and is now part of the education team at RStudio

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.

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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*.

Maya Python for Games and Film is the first book to focus exclusively on how to implement Python with Maya. Written by trusted authorities in the field, this in-depth guide will help you master Maya Python, whether you're a seasoned technical artist looking to make the transition from MEL to Python or an aspiring artist not wanting to scramble for information.

Design, simulate, and program interactive robots
Key Features Design, simulate, build, and program an interactive autonomous mobile robot
Leverage the power of ROS, Gazebo, and Python to enhance your robotic

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skills A hands-on guide to creating an autonomous mobile robot with the help of ROS and Python Book Description Robot Operating System (ROS) is one of the most popular robotics software frameworks in research and industry. It has various features for implementing different capabilities in a robot without implementing them from scratch. This book starts by showing you the fundamentals of ROS so you understand the basics of differential robots. Then, you'll learn about robot modeling and how to design and simulate it using ROS. Moving on, we'll design robot hardware and interfacing actuators. Then, you'll learn to configure and program depth sensors and LIDARs using ROS. Finally, you'll create a GUI for your robot using the Qt framework. By the end of this tutorial, you'll have a clear idea of how to integrate and assemble everything into a robot and how to bundle the software package. What you will learn

- Design a differential robot from scratch
- Model a differential robot using ROS and URDF
- Simulate a differential robot using ROS and Gazebo
- Design robot hardware electronics
- Interface robot actuators with embedded boards
- Explore the interfacing of different 3D depth cameras in ROS
- Implement autonomous navigation in ChefBot
- Create a GUI for robot control

Who this book is for This book is for those who are conducting research in mobile robotics and autonomous navigation. As well as the robotics research domain, this book is also for the robot hobbyist community. You're expected to have a basic understanding of Linux commands and Python.

The one-stop resource for all your Python queries

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Powerful and flexible, Python is one of the most popular programming languages in the world. It's got all the right stuff for the software driving the cutting-edge of the development world—machine learning, robotics, artificial intelligence, data science, etc. The good news is that it's also pretty straightforward to learn, with a simplified syntax, natural-language flow, and an amazingly supportive user community. The latest edition of Python All-in-One For Dummies gives you an inside look at the exciting possibilities offered in the Python world and provides a springboard to launch yourself into wherever you want your coding career to take you. These 7 straightforward and friendly mini-books assume the reader is a beginning programmer, and cover everything from the basic elements of Python code to introductions to the specific applications where you'll use it. Intended as a hands-on reference, the focus is on practice over theory, providing you with examples to follow as well as code for you to copy and start modifying in the "real world"—helping you get up and running in your area of interest almost right away. This means you'll be finishing off your first app or building and remote-controlling your own robot much faster than you can believe. Get a thorough grounding in the language basics Learn how the syntax is applied in high-profile industries Apply Python to projects in enterprise Find out how Python can get you into hot careers in AI, big data, and more Whether you're a newbie coder or just want to add Python to your magic box of tricks, this is the perfect, practical introduction—and one you'll return to as you grow your career.

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Rigging for Games: A Primer for Technical Artists Using Maya and Python is not just another step-by-step manual of loosely related tutorials. Using characters from the video game *Tin*, it takes you through the real-world creative and technical process of rigging characters for video games and cinematics, allowing readers a complete inside look at a single project. You'll explore new ways to write scripts and create modular rigs using Maya and Python, and automate and speed up the rigging process in your creative pipeline. Finally, you'll learn the most efficient ways of exporting your rigs into the popular game engine Unity. This is the practical, start-to-finish rigging primer you've been waiting for! Enhance your skillset by learning how to efficiently rig characters using techniques applicable to both games and cinematics. Keep up with all the action with behind-the-scenes images and code scripts. Refine your rigging skills with tutorials and project files available on the companion website.

Summary *Generative Art* presents both the technique and the beauty of algorithmic art. The book includes high-quality examples of generative art, along with the specific programmatic steps author and artist Matt Pearson followed to create each unique piece using the Processing programming language. About the Technology Artists have always explored new media, and computer-based artists are no exception. Generative art, a technique where the artist creates print or onscreen images by using computer algorithms, finds the artistic intersection of programming, computer graphics, and individual expression. The book includes a tutorial

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on Processing, an open source programming language and environment for people who want to create images, animations, and interactions. About the Book Generative Art presents both the techniques and the beauty of algorithmic art. In it, you'll find dozens of high-quality examples of generative art, along with the specific steps the author followed to create each unique piece using the Processing programming language. The book includes concise tutorials for each of the technical components required to create the book's images, and it offers countless suggestions for how you can combine and reuse the various techniques to create your own works. Purchase of the print book comes with an offer of a free PDF, ePub, and Kindle eBook from Manning. Also available is all code from the book. What's Inside The principles of algorithmic art A Processing language tutorial Using organic, pseudo-random, emergent, and fractal processes =====

===== ?===== Table of Contents Part 1 Creative Coding Generative Art: In Theory and Practice Processing: A Programming Language for Artists Part 2 Randomness and Noise The Wrong Way to Draw A Line The Wrong Way to Draw a Circle Adding Dimensions Part 3 Complexity Emergence Autonomy Fractals Summary Grokking Algorithms is a fully illustrated, friendly guide that teaches you how to apply common algorithms to the practical problems you face every day as a programmer. You'll start with sorting and searching and, as you build up your skills in thinking algorithmically, you'll tackle more complex concerns such as data compression and artificial intelligence. Each carefully

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presented example includes helpful diagrams and fully annotated code samples in Python. Learning about algorithms doesn't have to be boring! Get a sneak peek at the fun, illustrated, and friendly examples you'll find in *Grokking Algorithms* on Manning Publications' YouTube channel. Continue your journey into the world of algorithms with *Algorithms in Motion*, a practical, hands-on video course available exclusively at Manning.com (www.manning.com/livevideo/algorithms-?in-motion). Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

About the Technology An algorithm is nothing more than a step-by-step procedure for solving a problem. The algorithms you'll use most often as a programmer have already been discovered, tested, and proven. If you want to understand them but refuse to slog through dense multipage proofs, this is the book for you. This fully illustrated and engaging guide makes it easy to learn how to use the most important algorithms effectively in your own programs.

About the Book *Grokking Algorithms* is a friendly take on this core computer science topic. In it, you'll learn how to apply common algorithms to the practical programming problems you face every day. You'll start with tasks like sorting and searching. As you build up your skills, you'll tackle more complex problems like data compression and artificial intelligence. Each carefully presented example includes helpful diagrams and fully annotated code samples in Python. By the end of this book, you will have mastered widely applicable algorithms as well as how and when to use them. What's Inside Covers search, sort, and graph algorithms Over

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400 pictures with detailed walkthroughs Performance trade-offs between algorithms Python-based code samples About the Reader This easy-to-read, picture-heavy introduction is suitable for self-taught programmers, engineers, or anyone who wants to brush up on algorithms. About the Author Aditya Bhargava is a Software Engineer with a dual background in Computer Science and Fine Arts. He blogs on programming at adit.io. Table of Contents Introduction to algorithms Selection sort Recursion Quicksort Hash tables Breadth-first search Dijkstra's algorithm Greedy algorithms Dynamic programming K-nearest neighbors
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