

Software Optimization Cookbook Second Edition

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The Software Optimization Cookbook John Wiley & Sons

Complete recipes spread across 15 chapters to help you overcome commonly faced issues by Python for everybody across the globe. Each recipe takes a problem-solution approach to resolve for effective Python. Key Features Develop expressive and effective Python programs Best practices and common idioms through carefully explained recipes Discover new ways to apply Python for data-focused development Make use of Python's optional type annotations Book Description Python is the preferred choice of developers, engineers, data scientists, and hobbyists everywhere. It is a great language that can power your applications and provide great speed, safety, and scalability. It can be used for simple scripting or sophisticated web applications. By exposing Python as a series of simple recipes, this book gives you insight into specific language features in a particular context. Having a tangible context helps make the language or a given standard library feature easier to understand. This book comes with 133 recipes on the latest version of Python 3.8. The recipes will benefit everyone, from beginners just starting out with Python to experts. You'll not only learn Python programming concepts but also how to build complex applications. The recipes will touch upon all necessary Python concepts related to data structures, object oriented programming, functional programming, and statistical programming. You will get acquainted with the nuances of Python syntax and how to effectively take advantage of it. By the end of this Python book, you will be equipped with knowledge of testing, web services, configuration, and application integration tips and tricks. You will be armed with the knowledge of how to create applications with flexible logging, powerful configuration, command-line options, automated unit tests, and good documentation. What you will learn See the intricate details of the Python syntax and how to use it to your advantage Improve your coding with Python readability through functions Manipulate data effectively using built-in data structures Get acquainted with advanced programming techniques in Python Equip yourself with functional and statistical programming features Write proper tests to be sure a program works as advertised Integrate application

software using Python Who this book is for The Python book is for web developers, programmers, enterprise programmers, engineers, and big data scientists. If you are a beginner, this book will get you started. If you are experienced, it will expand your knowledge base. A basic knowledge of programming would help. OpenGL 4 Shading Language Cookbook, Second Edition IGI Global This book follows a Cookbook style and is packed with intermediate and advanced level recipes. This book is for Java developers who have an interest in discovering new ways to quickly get the job done using a new language that shares many similarities with Java. The book's recipes start simple, therefore no previous Groovy experience is required to understand the code and the explanations accompanying the examples.

Parallel Programming with Intel Parallel Studio XE Springer Science & Business Media

Thinking Low-Level, Writing High-Level, the second volume in the landmark Write Great Code series by Randall Hyde, covers high-level programming languages (such as Swift and Java) as well as code generation on 64-bit CPUs ARM, the Java Virtual Machine, and the Microsoft Common Runtime. Today's programming languages offer productivity and portability, but also make it easy to write sloppy code that isn't optimized for a compiler. Thinking Low-Level, Writing High-Level will teach you to craft source code that results in good machine code once it's run through a compiler. You'll learn: How to analyze the output of a compiler to verify that your code generates good machine code The types of machine code statements that compilers generate for common control structures, so you can choose the best statements when writing HLL code Enough assembly language to read compiler output How compilers convert various constant and variable objects into machine data With an understanding of how compilers work, you'll be able to write source code that they can translate into elegant machine code. NEW TO THIS EDITION, COVERAGE OF: Programming languages like Swift and Java Code generation on modern 64-bit CPUs ARM processors on mobile phones and tablets Stack-based architectures like the Java Virtual Machine Modern language systems like the Microsoft Common Language Runtime

High Performance Python Independently Published

In the intervening years since this book was published in 1981, the field of optimization has been exceptionally lively. This fertility has involved not only progress in theory, but also faster numerical algorithms and extensions into unexpected or previously unknown areas such as semidefinite programming. Despite these changes, many of the important principles and much of the intuition can be found in this Classics version of Practical Optimization. This book provides model algorithms and pseudocode, useful tools for users who prefer to write their own code as well as for those who want to understand externally provided code. It presents algorithms in a

step-by-step format, revealing the overall structure of the underlying procedures and thereby allowing a high-level perspective on the fundamental differences. And it contains a wealth of techniques and strategies that are well suited for optimization in the twenty-first century, and particularly in the now-flourishing fields of data science, "big data," and machine learning. Practical Optimization is appropriate for advanced undergraduates, graduate students, and researchers interested in methods for solving optimization problems.

PostgreSQL 9 Administration Cookbook - Second Edition Apress

Performance tuning is becoming more important than it has been for the last 40 years. Read this book to understand your application's performance that runs on a modern CPU and learn how you can improve it. The 170+ page guide combines the knowledge of many optimization experts from different industries.

Learn Amazon SageMaker CRC Press

The Soil Organic Carbon Mapping cookbook provides a step-by-step guidance for developing 1 km grids for soil carbon stocks. It includes the preparation of local soil data, the compilation and pre-processing of ancillary spatial data sets, upscaling methodologies, and uncertainty assessments. Guidance is mainly specific to soil carbon data, but also contains many generic sections on soil grid development, as it is relevant for other soil properties. This second edition of the cookbook provides generic methodologies and technical steps to produce SOC maps and has been updated with knowledge and practical experiences gained during the implementation process of GSOCmap V1.0 throughout 2017. Guidance is mainly specific to SOC data, but as this cookbook contains generic sections on soil grid development it can be applicable to map various soil properties.

Groovy 2 Cookbook "O'Reilly Media, Inc."

If you are a network administrator, you're under a lot of pressure to ensure that mission-critical systems are completely safe from malicious code, buffer overflows, stealth port scans, SMB probes, OS fingerprinting attempts, CGI attacks, and other network intruders. Designing a reliable way to detect intruders before they get in is an essential--but often overwhelming--challenge. Snort, the defacto open source standard of intrusion detection tools, is capable of performing real-time traffic analysis and packet logging on IP network. It can perform protocol analysis, content searching, and matching. Snort can save countless headaches; the new Snort Cookbook will save countless hours of sifting through dubious online advice or wordy tutorials in order to leverage the full power of SNORT. Each recipe in the popular and practical problem-solution-discussion

O'Reilly cookbook format contains a clear and thorough description of the problem, a concise but complete discussion of a solution, and real-world examples that illustrate that solution. The Snort Cookbook covers important issues that sys admins and security pros will use everyday, such as: installation optimization logging alerting rules and signatures detecting viruses countermeasures detecting common attacks administration honeypots log analysis But the Snort Cookbook offers far more than quick cut-and-paste solutions to frustrating security issues. Those who learn best in the trenches--and don't have the hours to spare to pore over tutorials or troll online for best-practice snippets of advice--will find that the solutions offered in this ultimate Snort sourcebook not only solve immediate problems quickly, but also showcase the best tips and tricks they need to master to be security gurus--and still have a life. *Deep Reinforcement Learning Hands-On* Packt Publishing Ltd Quickly build and deploy machine learning models without managing infrastructure, and improve productivity using Amazon SageMaker's capabilities such as Amazon SageMaker Studio, Autopilot, Experiments, Debugger, and Model Monitor Key Features Build, train, and deploy machine learning models quickly using Amazon SageMaker Analyze, detect, and receive alerts relating to various business problems using machine learning algorithms and techniques Improve productivity by training and fine-tuning machine learning models in production Book Description Amazon SageMaker enables you to quickly build, train, and deploy machine learning (ML) models at scale, without managing any infrastructure. It helps you focus on the ML problem at hand and deploy high-quality models by removing the heavy lifting typically involved in each step of the ML process. This book is a comprehensive guide for data scientists and ML developers who want to learn the ins and outs of Amazon SageMaker. You'll understand how to use various modules of SageMaker as a single toolset to solve the challenges faced in ML. As you progress, you'll cover features such as AutoML, built-in algorithms and frameworks, and the option for writing your own code and algorithms to build ML models. Later, the book will show you how to integrate Amazon SageMaker with popular deep learning libraries such as TensorFlow and PyTorch to increase the capabilities of existing models. You'll also learn to get the models to production faster with minimum effort and at a lower cost. Finally, you'll explore how to use Amazon SageMaker

Debugger to analyze, detect, and highlight problems to understand the current model state and improve model accuracy. By the end of this Amazon book, you'll be able to use Amazon SageMaker on the full spectrum of ML workflows, from experimentation, training, and monitoring to scaling, deployment, and automation. What you will learn

Create and automate end-to-end machine learning workflows on Amazon Web Services (AWS) Become well-versed with data annotation and preparation techniques Use AutoML features to build and train machine learning models with AutoPilot Create models using built-in algorithms and frameworks and your own code Train computer vision and NLP models using real-world examples Cover training techniques for scaling, model optimization, model debugging, and cost optimization Automate deployment tasks in a variety of configurations using SDK and several automation tools

Who this book is for This book is for software engineers, machine learning developers, data scientists, and AWS users who are new to using Amazon SageMaker and want to build high-quality machine learning models without worrying about infrastructure. Knowledge of AWS basics is required to grasp the concepts covered in this book more effectively. Some understanding of machine learning concepts and the Python programming language will also be beneficial.

Fluent Python Packt Publishing Ltd

Publisher's note: This edition from 2021 is outdated and does not cover the most recent Power BI updates. A new third edition, updated to the latest release is now available in color Purchase of the print or Kindle book includes a free eBook in the PDF format. Key Features Update your knowledge with new recipes for query optimization, aggregation tables, Power BI API, and paginated reports Work with recipes across diverse Power BI platforms including the Power BI Service and Mobile Applications Implement custom solutions with M and DAX languages through actionable guidance and proven development techniques

Book Description The complete everyday reference guide to Power BI, written by an internationally recognized Power BI expert duo, is back with a new and updated edition. Packed with revised practical recipes, *Microsoft Power BI Cookbook, Second Edition*, helps you navigate Power BI tools and advanced features. It also demonstrates the use of end-to-end solutions that integrate those features to get the most out of Power BI. With the help of the recipes in this book, you'll gain advanced design and development insight, practical tips, and guidance on enhancing existing Power

BI projects. The updated recipes will equip you with everything you need to know to implement evergreen frameworks that will stay relevant as Power BI updates. You'll familiarize yourself with Power BI development tools and services by going deep into the data connectivity, transformation, modeling, visualization, and analytical capabilities of Power BI. By the end of this book, you'll make the most of Power BI's functional programming languages of DAX and M and deliver powerful solutions to common business intelligence challenges. What you will learn Cleanse, stage, and integrate your data sources with Power Query (M) Remove data complexities and provide users with intuitive, self-service BI capabilities Build business logic and analysis into your solutions via the DAX programming language and dashboard-ready calculations Implement aggregation tables to accelerate query performance over large data sources Create and integrate paginated reports Understand the differences and implications of DirectQuery, live connections, Import, and Composite model datasets Integrate other Microsoft data tools into your Power BI solution

Who this book is for If you're a BI professional who wants to up their knowledge of Power BI and offer more value to their organization, then this book is for you. Those looking for quick solutions to common Power BI problems will also find this book an extremely useful resource. Please be aware that this is not a beginner's guide; you'll need a solid understanding of Power BI and experience working with datasets before you dive in.

R Cookbook Packt Publishing Ltd

Maxim Lapan delivers intuitive explanations and insights into complex reinforcement learning (RL) concepts, starting from the basics of RL on simple environments and tasks to modern, state-of-the-art methods Purchase of the print or Kindle book includes a free PDF eBook Key Features Learn with concise explanations, modern libraries, and diverse applications from games to stock trading and web navigation Develop deep RL models, improve their stability, and efficiently solve complex environments New content on RL from human feedback (RLHF), MuZero, and transformers

Book Description Start your journey into reinforcement learning (RL) and reward yourself with the third edition of *Deep Reinforcement Learning Hands-On*. This book takes you through the basics of RL to more advanced concepts with the help of various applications, including game playing, discrete optimization, stock trading, and web browser navigation. By walking you through landmark research papers in the field, this deep RL book will equip you with

practical knowledge of RL and the theoretical foundation to understand and implement most modern RL papers. The book retains its approach of providing concise and easy-to-follow explanations from the previous editions. You'll work through practical and diverse examples, from grid environments and games to stock trading and RL agents in web environments, to give you a well-rounded understanding of RL, its capabilities, and its use cases. You'll learn about key topics, such as deep Q-networks (DQNs), policy gradient methods, continuous control problems, and highly scalable, non-gradient methods. If you want to learn about RL through a practical approach using OpenAI Gym and PyTorch, concise explanations, and the incremental development of topics, then *Deep Reinforcement Learning Hands-On, Third Edition*, is your ideal companion. What you will learn: Stay on the cutting edge with new content on MuZero, RL with human feedback, and LLMs. Evaluate RL methods, including cross-entropy, DQN, actor-critic, TRPO, PPO, DDPG, and D4PG. Implement RL algorithms using PyTorch and modern RL libraries. Build and train deep Q-networks to solve complex tasks in Atari environments. Speed up RL models using algorithmic and engineering approaches. Leverage advanced techniques like proximal policy optimization (PPO) for more stable training. Who this book is for: This book is ideal for machine learning engineers, software engineers, and data scientists looking to learn and apply deep reinforcement learning in practice. It assumes familiarity with Python, calculus, and machine learning concepts. With practical examples and high-level overviews, it's also suitable for experienced professionals looking to deepen their understanding of advanced deep RL methods and apply them across industries, such as gaming and finance.

Programming Language Pragmatics Packt Publishing Ltd

Discover the latest features of Unity 2021 and dive deeper into the nuances of professional game development with Unity Key Features. Discover the latest features of Unity 2021 including coverage of AR/VR development. Follow practical recipes for better 2D and 2D character development with Unity GameKits. Learn powerful techniques and expert best practices in building 3D objects, textures, and materials. Book Description: If you are a Unity developer looking to explore the newest features of Unity 2021 and recipes for advanced challenges, then this fourth edition of *Unity Cookbook* is here to help you. With this cookbook, you'll work through a wide variety of recipes that will help you use the essential features of the Unity game engine to their fullest potential. You familiarize yourself with shaders and Shader Graph before exploring animation features to enhance your skills in building games. As you progress, you will gain insights into Unity's latest editor, which will help you in laying out scenes, tweaking existing

apps, and building custom tools for augmented reality and virtual reality (AR/VR) experiences. The book will also guide you through many Unity C# gameplay scripting techniques, teaching you how to communicate with database-driven websites and process XML and JSON data files. By the end of this Unity book, you will have gained a comprehensive understanding of Unity game development and built your development skills. The easy-to-follow recipes will earn a permanent place on your bookshelf for reference and help you build better games that stay true to your vision. What you will learn: Discover how to add core game features to your projects with C# scripting. Create powerful and stylish UI with Unity's UI system, including power bars, radars, and button-driven scene changes. Work with essential audio features, including background music and sound effects. Discover Cinemachine in Unity to intelligently control camera movements. Add visual effects such as smoke and explosions by creating and customizing particle systems. Understand how to build your own Shaders with the Shader Graph tool. Who this book is for: If you're a Unity developer looking for better ways to resolve common recurring problems with recipes, then this book is for you. Programmers dipping their toes into multimedia features for the first time will also find this book useful. Before you get started with this Unity engine book, you'll need a solid understanding of Unity's functionality and experience with programming in C#.

Proceedings No Starch Press

Technology/Engineering/Mechanical Provides all the tools needed to begin solving optimization problems using MATLAB®. The Second Edition of *Applied Optimization with MATLAB® Programming* enables readers to harness all the features of MATLAB® to solve optimization problems using a variety of linear and nonlinear design optimization techniques. By breaking down complex mathematical concepts into simple ideas and offering plenty of easy-to-follow examples, this text is an ideal introduction to the field. Examples come from all engineering disciplines as well as science, economics, operations research, and mathematics, helping readers understand how to apply optimization techniques to solve actual problems. This Second Edition has been thoroughly revised, incorporating current optimization techniques as well as the improved MATLAB® tools. Two important new features of the text are: Introduction to the scan and zoom method, providing a simple, effective technique that works for unconstrained, constrained, and global optimization problems. New chapter, Hybrid Mathematics: An Application, using examples to illustrate how optimization can develop analytical or explicit solutions to differential systems and data-fitting problems. Each chapter ends with a set of problems that give readers an opportunity to put their new skills into practice. Almost all of the numerical techniques covered in the text are supported by MATLAB® code, which readers can download on the text's companion Web site www.wiley.com/go/venkat2e and use to begin solving problems on their own. This text is recommended for upper-level undergraduate and graduate students in all areas of engineering as well as other

disciplines that use optimization techniques to solve design problems. [PostgreSQL Query Optimization](#) Packt Publishing Ltd
Learn from state-of-the-art examples in robotics, motors, detection filters, chemical processes, aircraft, and spacecraft. This is a practical reference for industry engineers using MATLAB to solve everyday problems. With *MATLAB Recipes: A Problem-Solution Approach* you will review contemporary MATLAB coding including the latest language features and use MATLAB as a software development environment including code organization, GUI development, and algorithm design and testing. This book provides practical guidance for using MATLAB to build a body of code you can turn to time and again for solving technical problems in your line of work. Develop algorithms, test them, visualize the results, and pass the code along to others to create a functional code base for your firm.

[MATLAB Recipes](#) O'Reilly Media

Intended to anyone interested in numerical computing and data science: students, researchers, teachers, engineers, analysts, hobbyists... Basic knowledge of Python/NumPy is recommended. Some skills in mathematics will help you understand the theory behind the computational methods.

[Microsoft Power BI Cookbook](#) Food & Agriculture Org.

Write optimized queries. This book helps you write queries that perform fast and deliver results on time. You will learn that query optimization is not a dark art practiced by a small, secretive cabal of sorcerers. Any motivated professional can learn to write efficient queries from the get-go and capably optimize existing queries. You will learn to look at the process of writing a query from the database engine's point of view, and know how to think like the database optimizer. The book begins with a discussion of what a performant system is and progresses to measuring performance and setting performance goals. It introduces different classes of queries and optimization techniques suitable to each, such as the use of indexes and specific join algorithms. You will learn to read and understand query execution plans along with techniques for influencing those plans for better performance. The book also covers advanced topics such as the use of functions and procedures, dynamic SQL, and generated queries. All of these techniques are then used together to produce performant applications, avoiding the pitfalls of object-relational mappers. What You Will Learn Identify optimization goals in OLTP and OLAP systems Read and understand PostgreSQL execution plans Distinguish between short queries and long queries Choose the right optimization technique for each query type Identify indexes that will improve query performance Optimize full table scans Avoid the pitfalls

of object-relational mapping systems Optimize the entire application rather than just database queries Who This Book Is For IT professionals working in PostgreSQL who want to develop performant and scalable applications, anyone whose job title contains the words "database developer" or "database administrator" or who is a backend developer charged with programming database calls, and system architects involved in the overall design of application systems running against a PostgreSQL database

Practical Data Science Cookbook "O'Reilly Media, Inc."

Leverage Docker to deploying software at scale Key Features Leverage practical examples to manage containers efficiently Integrate with orchestration tools such as Kubernetes for controlled deployments Learn to implement best practices on improving efficiency and security of containers Book Description Docker is an open source platform for building, shipping, managing, and securing containers. Docker has become the tool of choice for people willing to work with containers. Since the market is moving toward containerization, Docker will definitely have a big role to play in the future tech market. This book starts with setting up Docker in different environment, and helps you learn how to work with Docker images. Then, you will take a deep dive into network and data management for containers. The book explores the RESTful APIs provided by Docker to perform different actions, such as image/container operations. The book then explores logs and troubleshooting Docker to solve issues and bottlenecks. You will gain an understanding of Docker use cases, orchestration, security, ecosystems, and hosting platforms to make your applications easy to deploy, build, and collaborate on. The book covers the new features of Docker 18.xx (or later), such as working with AWS and Azure, Docker Engine, Docker Swarm, Docker Compose, and so on. By the end of this book, you will have gained hands-on experience of finding quick solutions to different problems encountered while working with Docker. What you will learn Install Docker on various platforms Work with Docker images and containers Container networking and data sharing Docker APIs and language bindings Various PaaS solutions for Docker Implement container orchestration using Docker Swarm and Kubernetes Container security Docker on various clouds Who this book is for Book is targeted towards developers, system administrators, and DevOps engineers who want to use Docker in his/her development, QA, or production environments. It is expected that the reader has basic Linux/Unix skills such as installing packages, editing files, managing services, and so on. Any experience in virtualization technologies such as KVM, XEN, and VMware will be an added advantage

[Convex Optimization](#) Packt Publishing Ltd

Your Python code may run correctly, but you need it to run faster. Updated for Python 3, this expanded edition shows you how to locate

performance bottlenecks and significantly speed up your code in high-data-volume programs. By exploring the fundamental theory behind design choices, High Performance Python helps you gain a deeper understanding of Python's implementation. How do you take advantage of multicore architectures or clusters? Or build a system that scales up and down without losing reliability? Experienced Python programmers will learn concrete solutions to many issues, along with war stories from companies that use high-performance Python for social media analytics, productionized machine learning, and more. Get a better grasp of NumPy, Cython, and profilers Learn how Python abstracts the underlying computer architecture Use profiling to find bottlenecks in CPU time and memory usage Write efficient programs by choosing appropriate data structures Speed up matrix and vector computations Use tools to compile Python down to machine code Manage multiple I/O and computational operations concurrently Convert multiprocessing code to run on local or remote clusters Deploy code faster using tools like Docker

Soil Organic Carbon Mapping Cookbook Packt Publishing Ltd

OpenGL Shading Language 4 Cookbook is a hands-on guide that gets straight to the point - actually creating graphics, instead of just theoretical learning. Each recipe is specifically tailored to satisfy your appetite for producing real-time 3-D graphics using the latest GLSL specification. This book is for OpenGL programmers looking to use the modern features of GLSL 4 to create real-time, three-dimensional graphics. Familiarity with OpenGL programming, along with the typical 3D coordinate systems, projections, and transformations is assumed. It can also be useful for experienced GLSL programmers who are looking to implement the techniques that are presented here.

C++ High Performance Packt Publishing Ltd

Embedded Computing for High Performance: Design Exploration and Customization Using High-level Compilation and Synthesis Tools provides a set of real-life example implementations that migrate traditional desktop systems to embedded systems. Working with popular hardware, including Xilinx and ARM, the book offers a comprehensive description of techniques for mapping computations expressed in programming languages such as C or MATLAB to high-performance embedded architectures consisting of multiple CPUs, GPUs, and reconfigurable hardware (FPGAs). The authors demonstrate a domain-specific language (LARA) that facilitates retargeting to multiple computing systems using the same source code. In this way, users can decouple original application code from transformed code and enhance productivity and program portability. After reading this book, engineers will understand the processes, methodologies, and best practices needed for

the development of applications for high-performance embedded computing systems. - Focuses on maximizing performance while managing energy consumption in embedded systems - Explains how to retarget code for heterogeneous systems with GPUs and FPGAs - Demonstrates a domain-specific language that facilitates migrating and retargeting existing applications to modern systems - Includes downloadable slides, tools, and tutorials

Proceedings of the ... ACM SIGPLAN Symposium on Principles & Practice of Parallel Programming Packt Publishing Ltd

OpenCV 3 Computer Vision Application Programming Cookbook is appropriate for novice C++ programmers who want to learn how to use the OpenCV library to build computer vision applications. It is also suitable for professional software developers wishing to be introduced to the concepts of computer vision programming. It can also be used as a companion book in a university-level computer vision courses. It constitutes an excellent reference for graduate students and researchers in image processing and computer vision.