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# Software Optimization Cookbook Second Edition

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[Embedded Computing for High Performance](#) Morgan Kaufmann

The Android Developer's Collection includes two highly successful Android application development eBooks: "The Android Developer's Cookbook: Building Applications with the Android SDK" "Android Wireless Application Development," Second Edition This collection is an indispensable resource for every member of the Android development team: software developers with all levels of mobile experience, team leaders and project managers, testers and QA specialists, software architects, and even marketers. Completely up-to-date to reflect the newest and most widely used Android SDKs, "The

Android Developer's Cookbook "is the essential resource for developers building apps for any Android device, from phones to tablets. Proven, modular recipes take you from the absolute basics to advanced location-based services, security techniques, and performance optimization. You'll learn how to write apps from scratch, ensure interoperability, choose the best solutions for common problems, and avoid development pitfalls. "Android Wireless Application Development," Second Edition, delivers all the up-to-date information, tested code, and best practices you need to create and market successful mobile apps with the latest versions of Android. Drawing on their extensive experience with mobile and wireless development, Lauren Darcey and Shane Conder cover every step: concept, design, coding, testing, packaging, and delivery. Every chapter of this edition has been updated for the newest Android SDKs, tools, utilities, and hardware. All sample code has been overhauled and tested on leading devices from multiple companies, including HTC, Motorola, and ARCHOS. Many new examples have been added, including complete new applications. In this collection, coverage includes Implementing threads, services,

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receivers, and other background tasks Providing user alerts Organizing user interface layouts and views Managing user-initiated events such as touches and gestures Recording and playing audio and video Using hardware APIs available on Android devices Interacting with other devices via SMS, Web browsing, and social networking Storing data efficiently with SQLite and its alternatives Accessing location data via GPS Using location-related services such as the Google Maps API Building faster applications with native code Providing backup and restore with the Android Backup Manager Testing and debugging apps throughout the development cycle Using Web APIs, using the Android NDK, extending application reach, managing users, synchronizing data, managing backups, and handling advanced user input Editing Android manifest files, registering content providers, and designing and testing apps Working with Bluetooth, voice recognition, App Widgets, live folders, live wallpapers, and global search Programming 3D graphics with OpenGL ES 2.0

*Docker Cookbook* Packt Publishing Ltd

If you are an architect, this book will help you make the correct decisions about which Azure building blocks to use. If you are a developer, this book will help you understand how to use them appropriately, and if you are a .NET developer, this book is a pure delight.

*Embedded Linux Development Using Yocto Project Cookbook* CRC Press

Tackle the trickiest of problems in Go programming with this practical guide Key Features Develop applications for different domains using modern programming techniques Tackle common problems when it comes to parallelism, concurrency, and reactive

programming in GoWork with ready-to-execute code based on the latest version of GoBook Description Go (or Golang) is a statically typed programming language developed at Google. Known for its vast standard library, it also provides features such as garbage collection, type safety, dynamic-typing capabilities, and additional built-in types. This book will serve as a reference while implementing Go features to build your own applications. This Go cookbook helps you put into practice the advanced concepts and libraries that Golang offers. The recipes in the book follow best practices such as documentation, testing, and vendoring with Go modules, as well as performing clean abstractions using interfaces. You'll learn how code works and the common pitfalls to watch out for. The book covers basic type and error handling, and then moves on to explore applications, such as websites, command-line tools, and filesystems, that interact with users. You'll even get to grips with parallelism, distributed systems, and performance tuning. By the end of the book, you'll be able to use open source code and concepts in Go programming to build enterprise-class applications without any hassle. What you will learnWork with third-party Go projects and modify them for your useWrite Go code using modern best practicesManage your dependencies with the new Go module systemSolve common problems encountered when dealing with backend systems or DevOpsExplore the Go standard library and its usesTest, profile, and fine-tune Go applicationsWho this book is for If you're a web developer, programmer, or enterprise developer looking for quick solutions to common and not-so-common problems in Go programming, this book is for you. Basic knowledge of the Go language is assumed.

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Optimized C++ "O'Reilly Media, Inc."

Michael Abrash explores the inner workings of all Intel-based PCs including the hot new Pentium. This is the only book available that provides practical and innovative "right-brain" approaches to writing fast PC software using C/C++ and assembly language. This book is packed with "from the trenches" programming secrets and features "undocumented" Pentium programming tips. Provides hundreds of optimized coding examples.

Python GUI Programming Cookbook "O'Reilly Media, Inc."

As the application of object technology--particularly the Java programming language--has become commonplace, a new problem has emerged to confront the software development community. Significant numbers of poorly designed programs have been created by less-experienced developers, resulting in applications that are inefficient and hard to maintain and extend. Increasingly, software system professionals are discovering just how difficult it is to work with these inherited, "non-optimal" applications. For several years, expert-level object programmers have employed a growing collection of techniques to improve the structural integrity and performance of such existing software programs. Referred to as "refactoring," these practices have remained in the domain of experts because no attempt has been made to transcribe the lore into a form that all developers could use. . .until now. In Refactoring: Improving the Design of Existing Code, renowned object technology mentor Martin Fowler breaks new ground, demystifying these master practices and demonstrating how software practitioners can realize the significant benefits of this new process. With proper training a skilled system designer can take a bad design and rework it into

well-designed, robust code. In this book, Martin Fowler shows you where opportunities for refactoring typically can be found, and how to go about reworking a bad design into a good one. Each refactoring step is simple--seemingly too simple to be worth doing. Refactoring may involve moving a field from one class to another, or pulling some code out of a method to turn it into its own method, or even pushing some code up or down a hierarchy. While these individual steps may seem elementary, the cumulative effect of such small changes can radically improve the design. Refactoring is a proven way to prevent software decay. In addition to discussing the various techniques of refactoring, the author provides a detailed catalog of more than seventy proven refactorings with helpful pointers that teach you when to apply them; step-by-step instructions for applying each refactoring; and an example illustrating how the refactoring works. The illustrative examples are written in Java, but the ideas are applicable to any object-oriented programming language.

**Go Programming Cookbook** Packt Publishing Ltd

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

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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

### *Release It!* Pragmatic Bookshelf

This book is an all-in-one source of information for programming the Second-Generation Intel Xeon Phi product family also called Knights Landing. The authors provide detailed and timely Knights Landingspecific details,

programming advice, and real-world examples. The authors distill their years of Xeon Phi programming experience coupled with insights from many expert customers — Intel Field Engineers, Application Engineers, and Technical Consulting Engineers — to create this authoritative book on the essentials of programming for Intel Xeon Phi products. Intel® Xeon Phi™ Processor High-Performance Programming is useful even before you ever program a system with an Intel Xeon Phi processor. To help ensure that your applications run at maximum efficiency, the authors emphasize key techniques for programming any modern parallel computing system whether based on Intel Xeon processors, Intel Xeon Phi processors, or other high-performance microprocessors. Applying these techniques will generally increase your program performance on any system and prepare you better for Intel Xeon Phi processors. A practical guide to the essentials for programming Intel Xeon Phi processors Definitive coverage of the Knights Landing architecture Presents best practices for portable, high-performance computing and a familiar and proven threads and vectors programming model Includes real world code examples that highlight usages of the unique aspects of this new highly parallel and high-performance computational product Covers use of MCDRAM, AVX-512, Intel® Omni-Path fabric, many-cores (up to 72), and many threads (4 per core) Covers software developer tools, libraries and programming models Covers using Knights Landing as a processor and a coprocessor

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### Scala Cookbook Packt Publishing Ltd

If you are a Big Data enthusiast and wish to use Hadoop v2 to solve your problems, then this book is for you. This book is for Java programmers with little to moderate knowledge of Hadoop MapReduce. This is also a one-stop reference for developers and system admins who want to quickly get up to speed with using Hadoop v2. It would be helpful to have a basic knowledge of software development using Java and a basic working knowledge of Linux.

*Introduction to High Performance Computing for Scientists and Engineers* Packt Publishing Ltd

Fully Revised and Updated-Includes New Refactorings and Code Examples "Any fool can write code that a computer can understand. Good programmers write code that humans can understand."--M. Fowler (1999) For more than twenty years, experienced programmers worldwide have relied on Martin Fowler's Refactoring to improve the design of existing code and to enhance software maintainability, as well as to make existing code easier to understand. This eagerly awaited new edition has been fully updated to reflect crucial changes in the programming landscape. Refactoring, Second Edition, features an updated catalog of refactorings and includes JavaScript code examples, as well as new functional examples that demonstrate refactoring without classes. Like the original, this edition explains what refactoring is; why you should refactor; how to recognize code that needs refactoring; and how to actually do it successfully, no matter what language you use. Understand the process and general principles of refactoring Quickly apply useful refactorings to make a program easier to comprehend and change Recognize "bad smells" in code that signal opportunities to refactor Explore the refactorings, each with explanations, motivation, mechanics, and simple examples Build solid tests for your refactorings Recognize tradeoffs and obstacles to refactoring Includes free access to the canonical web edition, with even more refactoring resources. (See inside the book for details about how to access the web edition.)

### **Angular Cookbook** Addison-Wesley Professional

Programming multi-core and many-core computing systems Sabri Pllana, Linnaeus University, Sweden Fatos Xhafa, Technical University of Catalonia, Spain Provides state-of-the-art methods for programming multi-core and many-core systems The book comprises a selection of twenty two chapters covering: fundamental techniques and algorithms; programming approaches; methodologies and frameworks; scheduling and management; testing and evaluation methodologies; and case studies for programming multi-core and many-core systems. Program development for multi-core processors, especially for heterogeneous multi-core processors, is significantly more complex than for single-core processors. However, programmers have been traditionally trained for the development of sequential programs, and only a small percentage of them have experience with parallel programming. In the past, only a relatively small group of programmers interested in High Performance Computing (HPC) was concerned with the parallel programming issues, but the situation has changed dramatically with the appearance of multi-core processors on commonly used computing systems. It is expected that with the pervasiveness of multi-core processors, parallel programming will become mainstream. The pervasiveness of multi-core processors affects a large spectrum of systems, from embedded and general-purpose, to high-end computing systems. This book assists programmers in mastering the efficient programming of multi-core systems, which is of paramount importance for the software-intensive industry towards a more effective product-development cycle. Key features: Lessons, challenges, and roadmaps ahead.

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Contains real world examples and case studies. Helps programmers in mastering the efficient programming of multi-core and many-core systems. The book serves as a reference for a larger audience of practitioners, young researchers and graduate level students. A basic level of programming knowledge is required to use this book.

**Antipatterns** Packt Publishing Ltd

Create and manage spatial data with PostGIS Key Features Import and export geographic data from the PostGIS database using the available tools Maintain, optimize, and fine-tune spatial data for long-term viability Utilize the parallel support functionality that was introduced in PostgreSQL 9.6 Book Description PostGIS is a spatial database that integrates the advanced storage and analysis of vector and raster data, and is remarkably flexible and powerful. PostGIS provides support for geographic objects to the PostgreSQL object-relational database and is currently the most popular open source spatial databases. If you want to explore the complete range of PostGIS techniques and expose related extensions, then this book is for you. This book is a comprehensive guide to PostGIS tools and concepts which are required to manage, manipulate, and analyze spatial data in PostGIS. It covers key spatial data manipulation tasks, explaining not only how each task is performed, but also why. It provides practical guidance allowing you to safely take advantage of the advanced technology in PostGIS in order to simplify your spatial database administration tasks. Furthermore, you will learn to take advantage of basic and advanced vector, raster, and routing approaches along with the concepts of data maintenance, optimization, and performance, and will help you to integrate these into a large ecosystem of desktop and web tools. By the end, you will be armed with all the tools and instructions you need to both manage the spatial database system and make better decisions as your project's requirements evolve. What you will learn Import and export

geographic data from the PostGIS database using the available tools Structure spatial data using the functionality provided by a combination of PostgreSQL and PostGIS Work with a set of PostGIS functions to perform basic and advanced vector analyses Connect PostGIS with Python Learn to use programming frameworks around PostGIS Maintain, optimize, and fine-tune spatial data for long-term viability Explore the 3D capabilities of PostGIS, including LiDAR point clouds and point clouds derived from Structure from Motion (SfM) techniques Distribute 3D models through the Web using the X3D standard Use PostGIS to develop powerful GIS web applications using Open Geospatial Consortium web standards Master PostGIS Raster Who this book is for This book is for developers who need some quick solutions for PostGIS. Prior knowledge of PostgreSQL and spatial concepts would be an added advantage.

**PostGIS Cookbook** Packt Publishing Ltd

Software -- Programming Techniques.

**OpenCV Computer Vision Application Programming Cookbook Second Edition** Morgan Kaufmann

Until the late 1980s, information processing was associated with large mainframe computers and huge tape drives. During the 1990s, this trend shifted toward information processing with personal computers, or PCs. The trend toward miniaturization continues and in the future the majority of information processing systems will be small mobile computers, many of which will be embedded into larger products and interfaced to the physical environment. Hence, these kinds of systems are called embedded systems. Embedded systems together with their physical environment are called cyber-physical systems. Examples include systems such as transportation and fabrication equipment. It is expected that the total market volume of embedded systems will be significantly larger than that of

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traditional information processing systems such as PCs and mainframes. Embedded systems share a number of common characteristics. For example, they must be dependable, efficient, meet real-time constraints and require customized user interfaces (instead of generic keyboard and mouse interfaces). Therefore, it makes sense to consider common principles of embedded system design. Embedded System Design starts with an introduction into the area and a survey of specification models and languages for embedded and cyber-physical systems. It provides a brief overview of hardware devices used for such systems and presents the essentials of system software for embedded systems, like real-time operating systems. The book also discusses evaluation and validation techniques for embedded systems. Furthermore, the book presents an overview of techniques for mapping applications to execution platforms. Due to the importance of resource efficiency, the book also contains a selected set of optimization techniques for embedded systems, including special compilation techniques. The book closes with a brief survey on testing. Embedded System Design can be used as a text book for courses on embedded systems and as a source which provides pointers to relevant material in the area for PhD students and teachers. It assumes a basic knowledge of information processing hardware and software. Courseware related to this book is available at <http://ls12-www.cs.tu-dortmund.de/~marwedel>.

### **Power and Performance** IGI Global

Emphasizing leadership principles and practices, Antipatterns: Managing Software Organizations and People, Second Edition catalogs 49 business practices that are often precursors to failure. This updated edition of a

bestseller not only illustrates bad management approaches, but also covers the bad work environments and cultural traits commonly fou

### Intel Xeon Phi Processor High Performance Programming Packt Publishing Ltd

Learn to use scikit-learn operations and functions for Machine Learning and deep learning applications. About This Book Handle a variety of machine learning tasks effortlessly by leveraging the power of scikit-learn Perform supervised and unsupervised learning with ease, and evaluate the performance of your model Practical, easy to understand recipes aimed at helping you choose the right machine learning algorithm Who This Book Is For Data Analysts already familiar with Python but not so much with scikit-learn, who want quick solutions to the common machine learning problems will find this book to be very useful. If you are a Python programmer who wants to take a dive into the world of machine learning in a practical manner, this book will help you too. What You Will Learn Build predictive models in minutes by using scikit-learn Understand the differences and relationships between Classification and Regression, two types of Supervised Learning. Use distance metrics to predict in Clustering, a type of Unsupervised Learning Find points with similar characteristics with Nearest Neighbors. Use automation and cross-validation to find a best model and focus on it for a data product Choose among the best algorithm of many or use them together in an ensemble. Create your own

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estimator with the simple syntax of sklearn Explore the feed-forward neural networks available in scikit-learn In Detail Python is quickly becoming the go-to language for analysts and data scientists due to its simplicity and flexibility, and within the Python data space, scikit-learn is the unequivocal choice for machine learning. This book includes walk throughs and solutions to the common as well as the not-so-common problems in machine learning, and how scikit-learn can be leveraged to perform various machine learning tasks effectively. The second edition begins with taking you through recipes on evaluating the statistical properties of data and generates synthetic data for machine learning modelling. As you progress through the chapters, you will come across recipes that will teach you to implement techniques like data pre-processing, linear regression, logistic regression, K-NN, Naive Bayes, classification, decision trees, Ensembles and much more. Furthermore, you'll learn to optimize your models with multi-class classification, cross validation, model evaluation and dive deeper in to implementing deep learning with scikit-learn. Along with covering the enhanced features on model section, API and new features like classifiers, regressors and estimators the book also contains recipes on evaluating and fine-tuning the performance of your model. By the end of this book, you will have explored plethora of features offered by scikit-learn for Python to solve any machine learning problem you come across. Style and Approach This book consists of practical recipes on scikit-learn that target

novices as well as intermediate users. It goes deep into the technical issues, covers additional protocols, and many more real-live examples so that you are able to implement it in your daily life scenarios.

*Node Cookbook* 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

*Elasticsearch 5.x Cookbook* Prentice Hall PTR

Write code that scales across CPU registers, multi-core, and machine clusters Key Features Explore concurrent programming in C++ Identify memory management problems Use SIMD and STL containers for performance improvement Book Description C++ is a



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highly portable language and can be used to write both large-scale applications and performance-critical code. It has evolved over the last few years to become a modern and expressive language. This book will guide you through optimizing the performance of your C++ apps by allowing them to run faster and consume fewer resources on the device they're running on without compromising the readability of your code base. The book begins by helping you measure and identify bottlenecks in a C++ code base. It then moves on by teaching you how to use modern C++ constructs and techniques. You'll see how this affects the way you write code. Next, you'll see the importance of data structure optimization and memory management, and how it can be used efficiently with respect to CPU caches. After that, you'll see how STL algorithm and composable Range V3 should be used to both achieve faster execution and more readable code, followed by how to use STL containers and how to write your own specialized iterators. Moving on, you'll get hands-on experience in making use of modern C++ metaprogramming and reflection to reduce boilerplate code as well as in working with proxy objects to perform optimizations under the hood. After that, you'll learn concurrent programming and understand lock-free data structures. The book ends with an overview of parallel algorithms using STL execution policies, Boost Compute, and OpenCL to utilize both the CPU and the GPU. What you will learn

Benefits of modern C++ constructs and techniques  
Identify hardware bottlenecks, such as CPU cache misses, to boost performance  
Write specialized data structures for performance-critical code  
Use modern metaprogramming techniques to reduce runtime calculations  
Achieve efficient memory management using custom memory allocators  
Reduce boilerplate code using reflection techniques  
Reap the benefits of lock-free concurrent programming  
Perform under-the-hood optimizations with preserved readability using proxy objects  
Gain insights into subtle optimizations used by STL algorithms  
Utilize the Range V3 library for expressive C++ code  
Parallelize your code over CPU and GPU, without compromising readability  
Who this book is for

If you're a C++ developer looking to improve the speed of your code or simply wanting to take your skills up to the next level, then this book is perfect for you.

[The Software Optimization Cookbook](#) John Wiley & Sons  
Save time and trouble building object-oriented, functional, and concurrent applications with Scala. The latest edition of this comprehensive cookbook is packed with more than 250 ready-to-use recipes and 1,000 code examples to help you solve the most common problems when working with Scala 3 and its popular libraries. Scala changes the way you think about programming--and that's a good thing. Whether you're working on web, big data, or distributed applications, this cookbook provides recipes based on real-world scenarios for both experienced Scala developers and programmers just learning to use this JVM language. Author Alvin Alexander includes practical solutions from his experience using Scala for component-based, highly scalable applications that support concurrency and distribution. Recipes cover: Strings, numbers, and control structures  
Classes, methods, objects, traits, packaging, and imports  
Functional programming techniques  
Scala's wealth of collections classes and methods  
Building and publishing Scala applications with sbt  
Actors and concurrency with Scala Future and Akka Typed  
Popular libraries, including Spark, Scala.js, Play Framework, and GraalVM  
Types, such as variance, givens, intersections, and unions  
Best practices, including pattern matching, modules, and functional error handling

[scikit-learn Cookbook](#) Packt Publishing Ltd

Written by high performance computing (HPC) experts, *Introduction to High Performance Computing for Scientists and Engineers* provides a solid introduction to current mainstream computer architecture,

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dominant parallel programming models, and useful optimization strategies for scientific HPC. From working in a scientific computing center, the author

*Zen of Code Optimization* Packt Publishing Ltd

Proven methodologies and concurrency techniques that will help you write faster and better code with Go programming Key Features

Explore Go's profiling tools to write faster programs by identifying and fixing bottlenecks

Address Go-specific performance issues such as memory allocation and garbage collection

Delve into the subtleties of concurrency and discover how to successfully implement it in everyday applications

Book Description Go is an easy-to-write language that is popular among developers thanks to its features such as concurrency, portability, and ability to reduce complexity. This Golang book will teach you how to construct idiomatic Go code that is reusable and highly performant. Starting with an introduction to performance concepts, you'll understand the ideology behind Go's performance. You'll then learn how to effectively implement Go data structures and algorithms along with exploring data manipulation and organization to write programs for scalable software. This book covers channels and goroutines for parallelism and concurrency to write high-performance code for distributed systems. As you advance, you'll learn how to manage memory effectively. You'll explore the compute unified device architecture (CUDA) application programming interface (API), use containers to build Go code, and work with the Go build cache for quicker compilation. You'll also get to grips with profiling and tracing Go code for detecting bottlenecks in your system. Finally, you'll evaluate clusters and job queues for performance optimization and monitor the application for performance regression. By the end of this Go programming book, you'll be able to improve existing code and fulfill customer requirements by writing efficient programs. What you will learn

Organize and manipulate data effectively with clusters and job queues

Explore commonly applied Go data structures and

algorithms

Write anonymous functions in Go to build reusable apps

Profile and trace Go apps to reduce bottlenecks and improve efficiency

Deploy, monitor, and iterate Go programs with a focus on performance

Dive into memory management and CPU and GPU parallelism in Go

Who this book is for This Golang book is a must for developers and professionals who have an intermediate-to-advanced understanding of Go programming, and are interested in improving their speed of code execution.