

# [EPUB] Boost Graph Library User Guide And Reference Manual The Lie Quan Lee

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**Boost Graph Library**-Jeremy G. Siek 2001-12-20 The Boost Graph Library (BGL) is the first C++ library to apply the principles of generic programming to the construction of the advanced data structures and algorithms used in graph computations. Problems in such diverse areas as Internet packet routing, molecular biology, scientific computing, and telephone network design can be solved by using graph theory. This book presents an in-depth description of the BGL and provides working examples designed to illustrate the application of BGL to these real-world problems. Written by the BGL developers, **The Boost Graph Library: User Guide and Reference Manual** gives you all the information you need to take advantage of this powerful new library. Part I is a complete user guide that begins by introducing graph concepts, terminology, and generic graph algorithms. This guide also takes the reader on a tour through the major features of the BGL; all motivated with example problems. Part II is a comprehensive reference manual that provides complete documentation of all BGL concepts, algorithms, and classes. Readers will find coverage of: Graph terminology and concepts Generic programming techniques in C++ Shortest-path algorithms for Internet routing Network planning problems using the minimum-spanning tree algorithms BGL algorithms with implicitly defined graphs BGL Interfaces to other graph libraries BGL concepts and algorithms BGL classes-graph, auxiliary, and adaptor Groundbreaking in its scope, this book offers the key to unlocking the power of the BGL for the C++ programmer looking to extend the reach of generic programming beyond the Standard Template Library.

**Expert C++**-Vardan Grigoryan 2020-04-10 Design and architect real-world scalable C++ applications by exploring advanced techniques in low-level programming, object-oriented programming (OOP), the Standard Template Library (STL), metaprogramming, and concurrency **Key Features** Design professional-grade, maintainable apps by learning advanced concepts such as functional programming, templates, and networking Apply design patterns and best practices to solve real-world problems Improve the performance of your projects by designing concurrent data structures and algorithms **Book Description** C++ has evolved over the years and the latest release - C++20 - is now available. Since C++11, C++ has been constantly enhancing the language feature set. With the new version, you'll explore an array of features such as concepts, modules, ranges, and coroutines. This book will be your guide to learning the intricacies of the language, techniques, C++ tools, and the new features introduced in C++20, while also helping you apply these when building modern and resilient software. You'll start by exploring the latest features of C++, and then move on to advanced techniques such as multithreading, concurrency, debugging, monitoring, and high-performance programming. The book will delve into object-oriented programming principles and the C++ Standard Template Library, and even show you how to create custom templates. After this, you'll learn about different approaches such as test-driven development (TDD), behavior-driven development (BDD), and domain-driven design (DDD), before taking a look at the coding best practices and design patterns essential for building professional-grade applications. Toward the end of the book, you will gain useful insights into the recent C++ advancements in AI and machine learning. By the end of this C++ programming book, you'll have gained expertise in real-world application development, including the process of designing complex software. What you will learn **Understand** memory management and low-level programming in C++ to write secure and stable applications **Discover** the latest C++20 features such as modules, concepts, ranges, and coroutines **Understand** debugging and testing techniques and reduce issues in your programs **Design** and implement GUI applications using Qt5 **Use** multithreading and concurrency to make your programs run faster **Develop** high-end games by using the object-oriented capabilities of C++ **Explore** AI and machine learning concepts with C++ **Who this book is for** This C++ book is for experienced C++ developers who are looking to take their knowledge to the next level and perfect their skills in building professional-grade applications.

**Boost C++ Application Development Cookbook**-Antony Polukhin 2013-01-01 This book follows a cookbook approach, with detailed and practical recipes that use Boost libraries. This book is great for developers new to Boost, and who are looking to improve their knowledge of Boost and see some undocumented details or tricks. It's assumed that you will have some experience in C++ already, as well being familiar with the basics of STL. A few chapters will require some previous knowledge of multithreading and networking. You are expected to have at least one good C++ compiler and compiled version of Boost (1.53.0 or later is recommended), which will be used during the exercises within this book.

**The Boost C++ Libraries**-Boris Schäling 2011 The second edition of **The Boost C++ Libraries** introduces 72 Boost libraries that provide a wide range of useful capabilities. They help you manage memory and process strings more easily. They provide containers and other data structures that go well beyond what the standard library offers. They make it easy to build platform-independent network applications. Simply put, these 72 libraries greatly expand your C++ toolbox. The second edition contains more than 430 examples. All examples are as short as possible, but they are complete, so you can compile and run them as is. They show you what the Boost libraries offer and give you a head start on using the libraries in your own applications. The goal of this book is to increase your efficiency as a C++ developer and to simplify software development with C++. The Boost libraries introduced in this book will help you write less code with fewer bugs and finish projects faster. Your code will be more concise and self-explanatory and more easily adapted when requirements change. The second edition is based on the Boost libraries 1.55.0 and 1.56.0 with the latter version having been released in August 2014. The examples are based on C++11 and have been tested with Visual Studio 2013, GCC 4.8 and Clang 3.3 on various platforms. For Boost libraries which were incorporated into the C++11 standard library, differences between Boost and the standard library are highlighted. The Boost libraries are one of the most important and influential open source C++ libraries. Their source code is available under a permissive free software license. Several Boost libraries have been incorporated into the C++11 standard library. The Boost libraries are developed and supported by the Boost community - a worldwide developer community with a strong interest in pushing C++ boundaries further.

**Beyond the C++ Standard Library**-Björn Karlsson 2005-08-31 Introducing the Boost libraries: the next breakthrough in C++ programming Boost takes you far beyond the C++ Standard Library, making C++ programming more elegant, robust, and productive. Now, for the first time, a leading Boost expert systematically introduces the broad set of Boost libraries and teaches best practices for their use. Writing for intermediate-to-advanced C++ developers, Björn Karlsson briefly outlines all 58 Boost libraries, and then presents comprehensive coverage of 12 libraries you're likely to find especially useful. Karlsson's topics range from smart pointers and conversions to containers and data structures, explaining exactly how using each library can improve your code. He offers detailed coverage of higher-order function objects that enable you to write code that is more concise, expressive, and readable. He even takes you "behind the scenes" with Boost, revealing tools and techniques for creating your own generic libraries. Coverage includes Smart pointers that provide automatic lifetime management of objects and simplify resource sharing Consistent, best-practice solutions for performing type conversions and lexical conversions Utility classes that make programming simpler and clearer Flexible container libraries that solve common problems not covered by the C++ Standard Library Powerful support for regular expressions with Boost.Regex Function objects defined at the call site with Boost.Bind and Boost.Lambda More flexible callbacks with Boost.Function Managed signals and slots (a.k.a. the Observer pattern) with Boost.Signals The Boost libraries are proving so useful that many of them are planned for inclusion in the next version of the C++ Standard Library. Get your head start now, with **Beyond the C++ Standard Library**.

**Large-Scale C++ Volume I**-John Lakos 2019-12-02 Writing reliable and maintainable C++ software is hard. Designing such software at scale adds a new set of challenges. Creating large-scale systems requires a practical understanding of logical design - beyond the theoretical concepts addressed in most popular texts. To be successful on an enterprise scale, developers must also address physical design, a dimension of software engineering that may be unfamiliar even to expert developers. Drawing on over 30 years of hands-on experience building massive, mission-critical enterprise systems, John Lakos shows how to create and grow Software Capital. This groundbreaking volume lays the foundation for projects of all sizes and demonstrates the processes, methods, techniques, and tools needed for successful real-world, large-scale development. Up to date and with a solid engineering focus, **Large-Scale C++, Volume I: Process and Architecture**, demonstrates fundamental design concepts with concrete examples. Professional developers of all experience levels will gain insights that transform their approach to design and development by understanding how to Raise productivity by leveraging differences between infrastructure and application development

Achieve exponential productivity gains through feedback and hierarchical reuse Embrace the component's role as the fundamental unit of both logical and physical design Analyze how fundamental properties of compiling and linking affect component design Discover effective partitioning of logical content in appropriately sized physical aggregates Internalize the important differences among sufficient, complete, minimal, and primitive software Deliver solutions that simultaneously optimize encapsulation, stability, and performance Exploit the nine established levelization techniques to avoid cyclic physical dependencies Use lateral designs judiciously to avoid the "heaviness" of conventional layered architectures Employ appropriate architectural insulation techniques for eliminating compile-time coupling Master the multidimensional process of designing large systems using component-based methods This is the first of John Lakos's three authoritative volumes on developing large-scale systems using C++. This book, written for fellow software practitioners, uses familiar C++ constructs to solve real-world problems while identifying (and motivating) modern C++ alternatives. Together with the forthcoming Volume II: Design and Implementation and Volume III: Verification and Testing, Large-Scale C++ offers comprehensive guidance for all aspects of large-scale C++ software development. If you are an architect or project leader, this book will empower you to solve critically important problems right now - and serve as your go-to reference for years to come. Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

Learning Boost C++ Libraries-Arindam Mukherjee 2015-07-31 Filled with dozens of working code examples that illustrate the use of over 40 popular Boost libraries, this book takes you on a tour of Boost, helping you to independently build the libraries from source and use them in your own code. The first half of the book focuses on basic programming interfaces including generic containers and algorithms, strings, resource management, exception safety, and a miscellany of programming utilities that make everyday programming chores easy. Following a short interlude that introduces template metaprogramming and functional programming, the later chapters are devoted to systems programming interfaces, focusing on directory handling, I/O, concurrency, and network programming

Computational Biology and Genome Informatics-Jason T. L. Wang 2003 This book contains articles written by experts on a wide range of topics that are associated with the analysis and management of biological information at the molecular level. It contains chapters on RNA and protein structure analysis, DNA computing, sequence mapping, genome comparison, gene expression data mining, metabolic network modeling, and phyloinformatics

Polygon Mesh Processing-Mario Botsch 2010-10-07 Geometry processing, or mesh processing, is a fast-growing area of research that uses concepts from applied mathematics, computer science, and engineering to design efficient algorithms for the acquisition, reconstruction, analysis, manipulation, simulation, and transmission of complex 3D models. Applications of geometry processing algorithms already cover a wide range of areas from multimedia, entertainment, and classical computer-aided design, to biomedical computing, reverse engineering, and scientific computing. Over the last several years, triangle meshes have become increasingly popular, as irregular triangle meshes have developed into a valuable alternative to traditional spline surfaces. This book discusses the whole geometry processing pipeline based on triangle meshes. The pipeline starts with data input, for example, a model acquired by 3D scanning techniques. This data can then go through processes of error removal, mesh creation, smoothing, conversion, morphing, and more. The authors detail techniques for those processes using triangle meshes. A supplemental website contains downloads and additional information.

Algorithms on Trees and Graphs-Gabriel Valiente 2013-04-17 Graph algorithms is a well-established subject in mathematics and computer science. Beyond classical application fields, such as approximation, combinatorial optimization, graphics, and operations research, graph algorithms have recently attracted increased attention from computational molecular biology and computational chemistry. Centered around the fundamental issue of graph isomorphism, this text goes beyond classical graph problems of shortest paths, spanning trees, flows in networks, and matchings in bipartite graphs. Advanced algorithmic results and techniques of practical relevance are presented in a coherent and consolidated way. This book introduces graph algorithms on an intuitive basis followed by a detailed exposition in a literate programming style, with correctness proofs as well as worst-case analyses. Furthermore, full C++ implementations of all algorithms presented are given using the LEDA library of efficient data structures and algorithms.

Handbook of Open Source Tools-Sandeep Koranne 2010-10-17 Handbook of Open Source Tools introduces a comprehensive collection of advanced open source tools useful in developing software applications. The book contains information on more than 200 open-source tools which include software construction utilities for compilers, virtual-machines, database, graphics, high-performance computing, OpenGL, geometry, algebra, graph theory, GUIs and more. Special highlights for software construction utilities and application libraries are included. Each tool is covered in the context of a real like application development setting. This unique handbook presents a comprehensive discussion of advanced tools, a valuable asset used by most application developers and programmers; includes a special focus on Mathematical Open Source Software not available in most Open Source Software books, and introduces several tools (eg ACL2, CLIPS, CUDA, and COIN) which are not known outside of select groups, but are very powerful. Handbook of Open Source Tools is designed for application developers and programmers working with Open Source Tools. Advanced-level students concentrating on Engineering, Mathematics and Computer Science will find this reference a valuable asset as well.

Discovering Modern C++-Peter Gottschling 2015-12-23 As scientific and engineering projects grow larger and more complex, it is increasingly likely that those projects will be written in C++. With embedded hardware growing more powerful, much of its software is moving to C++, too. Mastering C++ gives you strong skills for programming at nearly every level, from "close to the hardware" to the highest-level abstractions. In short, C++ is a language that scientific and technical practitioners need to know. Peter Gottschling's Discovering Modern C++ is an intensive introduction that guides you smoothly to sophisticated approaches based on advanced features. Gottschling introduces key concepts using examples from many technical problem domains, drawing on his extensive experience training professionals and teaching C++ to students of physics, math, and engineering. This book is designed to help you get started rapidly and then master increasingly robust features, from lambdas to expression templates. You'll also learn how to take advantage of the powerful libraries available to C++ programmers: both the Standard Template Library (STL) and scientific libraries for arithmetic, linear algebra, differential equations, and graphs.

Throughout, Gottschling demonstrates how to write clear and expressive software using object orientation, generics, metaprogramming, and procedural techniques. By the time you're finished, you'll have mastered all the abstractions you need to write C++ programs with exceptional quality and performance. C++ Template Metaprogramming-David Abrahams 2005 This book explains what metaprogramming is and how it is best used. It provides the foundation you'll need to use the template metaprogramming effectively in your own work. This book is aimed at any programmer who is comfortable with idioms of the Standard Template Library (STL). C++ power-users will gain a new insight into their existing work and a new fluency in the domain of metaprogramming. Intermediate-level programmers who have learned a few advanced template techniques will see where these tricks fit in the big picture and will gain the conceptual foundation to use them with discipline. Programmers who have caught the scent of metaprogramming, but for whom it is still mysterious, will finally gain a clear understanding of how, when, and why it works. All readers will leave with a new tool of unprecedented power at their disposal - the Boost Metaprogramming Library.

The Algorithm Design Manual-Sтивен S Skiena 2009-04-05 This newly expanded and updated second edition of the best-selling classic continues to take the "mystery" out of designing algorithms, and analyzing their efficacy and efficiency. Expanding on the first edition, the book now serves as the primary textbook of choice for algorithm design courses while maintaining its status as the premier practical reference guide to algorithms for programmers, researchers, and students. The reader-friendly Algorithm Design Manual provides straightforward access to combinatorial algorithms technology, stressing design over analysis. The first part, Techniques, provides accessible instruction on methods for designing and analyzing computer algorithms. The second part, Resources, is intended for browsing and reference, and comprises the catalog of algorithmic resources, implementations and an extensive bibliography. NEW to the second edition: • Doubles the tutorial material and exercises over the first edition • Provides full online support for lecturers, and a completely updated and improved website component with lecture slides, audio and video • Contains a unique catalog identifying the 75 algorithmic problems that arise most often in practice, leading the reader down the right path to solve them • Includes several NEW "war stories" relating experiences from real-world applications • Provides up-to-date links leading to the very best algorithm implementations available in C, C++, and Java

Literate Programming-Donald Ervin Knuth 1992-01 Literate programming is a programming methodology that combines a programming language with a documentation language, making programs more easily maintained than programs written only in a high-level language. A literate programmer is an essayist who writes programs for humans to understand. When programs are written in the recommended style they can be transformed into documents by a document compiler and into efficient code by an algebraic compiler. This anthology of essays includes Knuth's early papers on related topics such as structured programming as well as the Computer Journal article that launched literate programming. Many examples are given, including excerpts from the programs for TeX and METAFONT. The final essay is an example of CWEB, a system for literate programming in C and related languages. Index included.

Raspberry Pi User Guide-Eben Upton 2016-08-29 Learn the Raspberry Pi 3 from the experts! Raspberry Pi User Guide, 4th Edition is the "unofficial official" guide to everything Raspberry Pi 3. Written by the Pi's creator and a leading Pi guru, this book goes straight to the source to bring you the ultimate Raspberry Pi 3 manual. This new fourth edition has been updated to cover the Raspberry Pi 3 board and software, with detailed discussion on its wide array of configurations, languages, and applications. You'll learn how to take full advantage of the mighty Pi's full capabilities, and then expand those capabilities even more with add-on technologies. You'll write productivity and multimedia programs, and learn flexible programming languages that allow you to shape your

Raspberry Pi into whatever you want it to be. If you're ready to jump right in, this book gets you started with clear, step-by-step instruction from software installation to system customization. The Raspberry Pi's tremendous popularity has spawned an entire industry of add-ons, parts, hacks, ideas, and inventions. The movement is growing, and pushing the boundaries of possibility along with it—are you ready to be a part of it? This book is your ideal companion for claiming your piece of the Pi. Get all set up with software, and connect to other devices Understand Linux System Admin nomenclature and conventions Write your own programs using Python and Scratch Extend the Pi's capabilities with add-ons like Wi-Fi dongles, a touch screen, and more The credit-card sized Raspberry Pi has become a global phenomenon. Created by the Raspberry Pi Foundation to get kids interested in programming, this tiny computer kick-started a movement of tinkerers, thinkers, experimenters, and inventors. Where will your Raspberry Pi 3 take you? The Raspberry Pi User Guide, 3rd Edition is your ultimate roadmap to discovery.

Flexible Pattern Matching in Strings-Gonzalo Navarro 2002-05-27 Presents recently developed algorithms for searching for simple, multiple and extended strings, regular expressions, exact and approximate matches.

C++ Crash Course-Josh Lospinosa 2019-09-24 A fast-paced, thorough introduction to modern C++ written for experienced programmers. After reading C++ Crash Course, you'll be proficient in the core language concepts, the C++ Standard Library, and the Boost Libraries. C++ is one of the most widely used languages for real-world software. In the hands of a knowledgeable programmer, C++ can produce small, efficient, and readable code that any programmer would be proud of. Designed for intermediate to advanced programmers, C++ Crash Course cuts through the weeds to get you straight to the core of C++17, the most modern revision of the ISO standard. Part 1 covers the core of the C++ language, where you'll learn about everything from types and functions, to the object life cycle and expressions. Part 2 introduces you to the C++ Standard Library and Boost Libraries, where you'll learn about all of the high-quality, fully-featured facilities available to you. You'll cover special utility classes, data structures, and algorithms, and learn how to manipulate file systems and build high-performance programs that communicate over networks. You'll learn all the major features of modern C++, including:

- Fundamental types, reference types, and user-defined types
- The object lifecycle including storage duration, memory management, exceptions, call stacks, and the RAII paradigm
- Compile-time polymorphism with templates and run-time polymorphism with virtual classes
- Advanced expressions, statements, and functions
- Smart pointers, data structures, dates and times, numerics, and probability/statistics facilities
- Containers, iterators, strings, and algorithms
- Streams and files, concurrency, networking, and application development

With well over 500 code samples and nearly 100 exercises, C++ Crash Course is sure to help you build a strong C++ foundation.

C++ Cookbook-D. Ryan Stephens 2006 Designed for the way many developers work, this practical problem-solving guide balances the need for rapid development with a trusted source of information.

The Value of Academic Libraries-Megan Oakleaf 2010 This report provides Association of College and Research Libraries (ACRL) leaders and the academic community with a clear view of the current state of the literature on value of libraries within an institutional context, suggestions for immediate "Next Steps" in the demonstration of academic library value, and a "Research Agenda" for articulating academic library value. Its focus is to help librarians understand, based on professional literature, the current answer to the question, "How does the library advance the missions of the institution?" This report is also of interest to higher educational professionals external to libraries, including senior leaders, administrators, faculty, and student affairs professionals.

C++17 STL Cookbook-Jacek Galowicz 2017-06-28 Over 90 recipes that leverage the powerful features of the Standard Library in C++17 About This Book Learn the latest features of C++ and how to write better code by using the Standard Library (STL). Reduce the development time for your applications. Understand the scope and power of STL features to deal with real-world problems. Compose your own algorithms without forfeiting the simplicity and elegance of the STL way. Who This Book Is For This book is for intermediate-to-advanced C++ programmers who want to get the most out of the Standard Template Library of the newest version of C++: C++ 17. What You Will Learn Learn about the new core language features and the problems they were intended to solve Understand the inner workings and requirements of iterators by implementing them Explore algorithms, functional programming style, and lambda expressions Leverage the rich, portable, fast, and well-tested set of well-designed algorithms provided in the STL Work with strings the STL way instead of handcrafting C-style code Understand standard support classes for concurrency and synchronization, and how to put them to work Use the filesystem library addition available with the C++17 STL In Detail C++ has come a long way and is in use in every area of the industry. Fast, efficient, and flexible, it is used to solve many problems. The upcoming version of C++ will see programmers change the way they code. If you want to grasp the practical usefulness of the C++17 STL in order to write smarter, fully portable code, then this book is for you. Beginning with new language features, this book will help you understand the language's mechanics and library features, and offers insight into how they work. Unlike other books, ours takes an implementation-specific, problem-solution approach that will help you quickly overcome hurdles. You will learn the core STL concepts, such as containers, algorithms, utility classes, lambda expressions, iterators, and more, while working on practical real-world recipes. These recipes will help you get the most from the STL and show you how to program in a better way. By the end of the book, you will be up to date with the latest C++17 features and save time and effort while solving tasks elegantly using the STL. Style and approach This recipe-based guide will show you how to make the best use of C++ together with the STL to squeeze more out of the standard language

The Quality Library-Sara Laughlin 2008-04-15 Based on more than 50 years of author expertise in organizational improvement, The Quality Library offers a methodology to pinpoint trouble areas and improve processes.

Boost.Asio C++ Network Programming-John Torjo 2013-01-01 What you want is an easy level of abstraction, which is just what this book provides in conjunction with Boost.Asio. Switching to Boost.Asio is just a few extra #include directives away, with the help of this practical and engaging guide. This book is great for developers that need to do network programming, who don't want to delve into the complicated issues of a raw networking API. You should be familiar with core Boost concepts, such as smart pointers and `shared_from_this`, resource classes (noncopyable), functors and `boost::bind`, `boost::mutexes`, and the `boost::date_time` library. Readers should also be familiar with "blocking" versus "non-blocking" operations.

Communicating Risks and Benefits-Baruch Fischhoff 2012-03-08 Effective risk communication is essential to the well-being of any organization and those people who depend on it. Ineffective communication can cost lives, money and reputations. Communicating Risks and Benefits: An Evidence-Based User's Guide provides the scientific foundations for effective communications. The book authoritatively summarizes the relevant research, draws out its implications for communication design, and provides practical ways to evaluate and improve communications for any decision involving risks and benefits. Topics include the communication of quantitative information and warnings, the roles of emotion and the news media, the effects of age and literacy, and tests of how well communications meet the organization's goals. The guide will help users in any organization, with any budget, to make the science of their communications as sound as the science that they are communicating.

Monitoring with Ganglia-Matt Massie 2012-11-19 "Taking dynamic host and application metrics at scale"--Cover.

Maximum Boost-Corky Bell 1997-08-10 Whether you're interested in better performance on the road or extra horsepower to be a winner on the track, this book gives you the knowledge you need to get the most out of your engine and its turbocharger system. Find out what works and what doesn't, which turbo is right for your needs, and what type of set-up will give you that extra boost. Bell shows you how to select and install the right turbo, how to prep your engine, test the systems, and integrate a turbo with EFI or carbureted engine.

Automated Solution of Differential Equations by the Finite Element Method-Anders Logg 2012-02-24 This book is a tutorial written by researchers and developers behind the FEniCS Project and explores an advanced, expressive approach to the development of mathematical software. The presentation spans mathematical background, software design and the use of FEniCS in applications. Theoretical aspects are complemented with computer code which is available as free/open source software. The book begins with a special introductory tutorial for beginners. Following are chapters in Part I addressing fundamental aspects of the approach to automating the creation of finite element solvers. Chapters in Part II address the design and implementation of the FEniCS software. Chapters in Part III present the application of FEniCS to a wide range of applications, including fluid flow, solid mechanics, electromagnetics and geophysics.

Pro TBB-Michael Voss 2019-07-09 This open access book is a modern guide for all C++ programmers to learn Threading Building Blocks (TBB). Written by TBB and parallel programming experts, this book reflects their collective decades of experience in developing and teaching parallel programming with TBB, offering their insights in an approachable manner. Throughout the book the authors present numerous examples and best practices to help you become an effective TBB programmer and leverage the power of parallel systems. Pro TBB starts with the basics, explaining parallel algorithms and C++'s built-in standard template library for parallelism. You'll learn the key concepts of managing memory, working with data structures and how to handle typical issues with synchronization. Later chapters apply these ideas to complex systems to explain performance tradeoffs, mapping common parallel patterns, controlling threads and overhead, and extending TBB to program heterogeneous systems or system-on-chips. What You'll Learn Use Threading Building Blocks to produce code that is portable, simple, scalable, and more understandable Review best practices for parallelizing computationally intensive tasks in your applications Integrate TBB with other threading packages Create scalable, high performance data-parallel programs Work with generic programming to write efficient algorithms Who This Book Is For C++ programmers learning to run applications on multicore systems, as well as C or C++ programmers without much experience with templates. No previous experience with parallel programming or multicore processors is required.

GNU Octave-Jesper Schmidt Hansen 2011-06-21 Today, scientific computing and data analysis play an integral part in most scientific disciplines ranging from mathematics and biology to imaging processing and finance. With GNU Octave you have a highly flexible tool that can solve a vast number of such different problems as complex statistical analysis and dynamical system studies. The GNU Octave Beginner's Guide gives you an introduction that enables you to solve and analyze complicated numerical problems. The book is based on numerous concrete examples and at the end of each chapter you will find exercises to test your knowledge. It's easy to learn GNU Octave, with the GNU Octave Beginner's Guide to hand. Using real-world examples the GNU Octave Beginner's Guide will take you through the most important aspects of GNU Octave. This practical guide takes you from the basics where you are introduced to the interpreter to a more advanced level where you will learn how to build your own specialized and highly optimized GNU Octave toolbox package. The book starts by introducing you to work variables like vectors and matrices, demonstrating how to perform simple arithmetic operations on these objects before explaining how to use some of the simple functionality that comes with GNU Octave, including plotting. It then goes on to show you how to write new functionality into GNU Octave and how to make a toolbox package to solve your specific problem. Finally, it demonstrates how to optimize your code and link GNU Octave with C and C++ code enabling you to solve even the most computationally demanding tasks. After reading GNU Octave Beginner's Guide you will be able to use and tailor GNU Octave to solve most numerical problems and perform complicated data analysis with ease.

IBM TS7700 Release 4.2 Guide-Larry Coyne 2019-04-19 This IBM® Redbooks® publication covers IBM TS7700 R4.2. The IBM TS7700 is part of a family of IBM Enterprise tape products. This book is intended for system architects and storage administrators who want to integrate their storage systems for optimal operation. Building on over 20 years of virtual tape experience, the TS7760 now supports the ability to store virtual tape volumes in an object store. The TS7700 has supported off loading to physical tape for over two decades. Off loading to physical tape behind a TS7700 is utilized by hundreds of organizations around the world. Using the same hierarchical storage techniques, the TS7700 can also off load to object storage. Given object storage is cloud based and accessible from different regions, the TS7760 Cloud Storage Tier support essentially allows the cloud to be an extension of the grid. As of the release of this document, the TS7760C supports the ability to off load to IBM Cloud Object Storage as well as Amazon S3. To learn about the TS7760 cloud storage tier function, planning, implementation, best practices, and support see IBM Redpaper IBM TS7760 R4.2 Cloud Storage Tier Guide, redp-5514 at:

<http://www.redbooks.ibm.com/abstracts/redp5514.html> The IBM TS7700 offers a modular, scalable, and high-performance architecture for mainframe tape virtualization for the IBM Z® environment. It is a fully integrated, tiered storage hierarchy of disk and tape. This storage hierarchy is managed by robust storage management microcode with extensive self-management capability. It includes the following advanced functions: Improved reliability and resiliency Reduction in the time that is needed for the backup and restore process Reduction of services downtime that is caused by physical tape drive and library outages Reduction in cost, time, and complexity by moving primary workloads to virtual tape More efficient procedures for managing daily backup and restore processing Infrastructure simplification through reduction of the number of physical tape libraries, drives, and media TS7700 delivers the following new capabilities: TS7760C supports the ability to off load to IBM Cloud Object Storage as well as Amazon S3 8-way Grid Cloud consisting of any generation of TS7700 Synchronous and asynchronous replication Tight integration with IBM Z and DFSMS policy management Optional Transparent Cloud Tiering Optional integration with physical tape Cumulative 16Gb FICON throughput up to 4.8GB/s 8 IBM Z hosts view up to 496 8 equivalent devices Grid access to all data independent of where it exists The TS7760T writes data by policy to physical tape through attachment to high-capacity, high-performance IBM TS1150 and IBM TS1140 tape drives installed in an IBM TS4500 or TS3500 tape library. The TS7760 models are based on high-performance and redundant IBM POWER8® technology. They provide improved performance for most IBM Z tape workloads when compared to the previous generations of IBM TS7700.

Interoperability and retrieval-Mukhopadhyay, Parthasarathi 2015-04-27

Bandit Algorithms-Tor Lattimore 2020-07-16 A comprehensive and rigorous introduction for graduate students and researchers, with applications in sequential decision-making problems.

From Mathematics to Generic Programming-Alexander A. Stepanov 2014-11-13 In this substantive yet accessible book, pioneering software designer Alexander Stepanov and his colleague Daniel Rose illuminate the principles of generic programming and the mathematical concept of abstraction on which it is based, helping you write code that is both simpler and more powerful. If you're a reasonably proficient programmer who can think logically, you have all the background you'll need. Stepanov and Rose introduce the relevant abstract algebra and number theory with exceptional clarity. They carefully explain the problems mathematicians first needed to solve, and then show how these mathematical solutions translate to generic programming and the creation of more effective and elegant code. To demonstrate the crucial role these mathematical principles play in many modern applications, the authors show how to use these results and generalized algorithms to implement a real-world public-key cryptosystem. As you read this book, you'll master the thought processes necessary for effective programming and learn how to generalize narrowly conceived algorithms to widen their usefulness without losing efficiency. You'll also gain deep insight into the value of mathematics to programming—insight that will prove invaluable no matter what programming languages and paradigms you use. You will learn about How to generalize a four thousand-year-old algorithm, demonstrating indispensable lessons about clarity and efficiency Ancient paradoxes, beautiful theorems, and the productive tension between continuous and discrete A simple algorithm for finding greatest common divisor (GCD) and modern abstractions that build on it Powerful mathematical approaches to abstraction How abstract algebra provides the idea at the heart of generic programming Axioms, proofs, theories, and models: using mathematical techniques to organize knowledge about your algorithms and data structures Surprising subtleties of simple programming tasks and what you can learn from them How practical implementations can exploit theoretical knowledge

Python Data Science Handbook-Jake VanderPlas 2016-11-21 For many researchers, Python is a first-class tool mainly because of its libraries for storing, manipulating, and gaining insight from data. Several resources exist for individual pieces of this data science stack, but only with the Python Data Science Handbook do you get them all—IPython, NumPy, Pandas, Matplotlib, Scikit-Learn, and other related tools. Working scientists and data crunchers familiar with reading and writing Python code will find this comprehensive desk reference ideal for tackling day-to-day issues: manipulating, transforming, and cleaning data; visualizing different types of data; and using data to build statistical or machine learning models. Quite simply, this is the must-have reference for scientific computing in Python. With this handbook, you'll learn how to use: IPython and Jupyter: provide computational environments for data scientists using Python NumPy: includes the ndarray for efficient storage and manipulation of dense data arrays in Python Pandas: features the DataFrame for efficient storage and manipulation of labeled/columnar data in Python Matplotlib: includes capabilities for a flexible range of data visualizations in Python Scikit-Learn: for efficient and clean Python implementations of the most important and established machine learning algorithms

Generic Programming and the STL-Matthew H. Austern 1999 This guide explains the C++ Standard Template Library (STL) in terms of generic programming—a way of designing and writing programs so that they can easily be reused. The fundamental premise is that the STL should be regarded as a library of concepts, rather than as a library of functions and classes.

Object-Oriented Technology. ECOOP 2008 Workshop Reader-Patrick Eugster 2009-05-25 This volume presents the reports from the workshops held in conjunction with the European Conference on Object-Oriented Programming (ECOOP2008), taking place in its 22nd edition at Coral Beach in Paphos, Cyprus, July 7–11 2008. As is customary, the workshops introduced the conference, taking place on the first two days (July 7 and July 8 2008) prior to the main technical track. The workshops were first chosen through a rigorous process with stringent selection criteria, carried out by the members of the Workshop Selection Committee. This volume collects reports from the resulting high-quality workshops. The topics covered span areas related to object-oriented programming and technology, such as programming languages, aspects, parallel computing, formal techniques, software engineering, tools, and applications. By summarizing the outcome of these workshops, this volume provides readers with a comprehensive set of pointers into current trends and issues of intense investigation and debate in the field of object-oriented technology. Following the tradition, the individual workshop reports summarize the workshop goals, before providing an overview of the presentations and sometimes also a summary of the issues and findings of debates fueled by the presentations. Some reports may also include a list of participants or contributed position papers. Several of the reports also contain a list of references to relevant publications and websites, including the workshop home page which usually offers the contributed position papers for download and may present further material.

Network Optimization-Panos M. Pardalos 2012-12-06 Network optimization is important in the modeling of problems and processes from such fields as engineering, computer science, operations research, transportation, telecommunication, decision support systems, manufacturing, and airline scheduling. Recent advances in data structures, computer technology, and algorithm development have made it possible to solve classes of network optimization problems that until recently were intractable. The refereed papers in this volume reflect the interdisciplinary efforts of a large group of scientists from academia and industry to model and solve complicated large-scale network optimization problems.

Programming Robots with ROS-Morgan Quigley 2015-11-16 Want to develop novel robot applications, but don't know how to write a mapping or object-recognition system? You're not alone, but you're certainly not without help. By combining real-world examples with valuable knowledge from the Robot Operating System (ROS) community, this practical book provides a set of motivating recipes for solving specific robotics use cases. Ideal for enthusiasts, from students in robotics clubs to professional robotics scientists and engineers, each recipe describes a complete solution using ROS open source libraries and tools. You'll learn how to complete tasks described in the recipes, as well as how to configure and recombine components for other tasks. If you're familiar with

Python, you're ready to go. Learn fundamentals, including key ROS concepts, tools, and patterns Program robots that perform an increasingly complex set of behaviors, using the powerful packages in ROS See how to easily add perception and navigation abilities to your robots Integrate your own sensors, actuators, software libraries, and even a whole robot into the ROS ecosystem Learn tips and tricks for using ROS tools and community resources, debugging robot behavior, and using C++ in ROS

IBM Content Manager OnDemand Guide-Zhu Wei-Dong 2016-05-04 This IBM® Redbooks® publication provides a practical guide to the design, installation, configuration, and maintenance of IBM Content Manager OnDemand Version 9.5. Content Manager OnDemand manages the high-volume storage and retrieval of electronic statements and provides efficient enterprise report management. Content Manager OnDemand transforms formatted computer output and printed reports, such as statements and invoices, into electronic information for easy report management. Content Manager OnDemand helps eliminate costly, high-volume print output by capturing, indexing, archiving, and presenting electronic information for improved customer service. This publication covers the key areas of Content Manager OnDemand, some of which might not be known to the Content Manager OnDemand community or are misunderstood. The book covers various topics, including basic information in administration, database structure, storage management, and security. In addition, the book covers data indexing, loading, conversion, and expiration. Other topics include user exits, performance, retention management, records management, and many more. Because many other resources are available that address subjects on different platforms, this publication is not intended as a comprehensive guide for Content Manager OnDemand. Rather, it is intended to complement the existing Content Manager OnDemand documentation and provide insight into the issues that might be encountered in the setup and use of Content Manager OnDemand. This book is intended for individuals who need to design, install, configure, and maintain Content Manager OnDemand.

Users' Guides to the Medical Literature-Gordon Guyatt 2008-03-01 The #1 guide to the principles and clinical applications of evidence-based medicine has just gotten better! A Doody's Core Title ESSENTIAL PURCHASE for 2011! No other resource helps you to put key evidence-based medicine protocols into daily clinical practice better than Users' Guides to the Medical Literature. An instant classic in its first edition, this detailed, yet highly readable reference demystifies the statistical, analytical, and clinical principles of evidence-based medicine, giving you a hands-on, practical resource that no other text can match. Here, you'll learn how to distinguish solid medical evidence from poor medical evidence, devise the best search strategies for each clinical question, critically appraise the medical literature, and optimally tailor evidence-based medicine for each patient. The new second edition of this landmark resource is now completely revised and refreshed throughout, with expanded coverage of both basic and advanced issues in using evidence-based medicine in clinical practice. FEATURES: Completely revised and updated to reflect the enormous expansion in medical research and evidence-based resources since the first edition Innovative organization guides you from the fundamentals of using the medical literature to the more advanced strategies and skills for use in every day patient care situations Abundant and current real-world examples drawn from the medical literature are woven throughout, and include important related principles and pitfalls in using medical literature in patient care decisions Practical focus on the key issues in evidence-based practice: What are the results? Are the results valid? How to I apply to results to the care of my patients? More than 60 internationally recognized editors and contributors from the U.S., Canada, South America, Europe, and Asia -- the best of the best in the discipline NEW coverage on how to: --Avoid being misled by biased presentations of research findings -- Interpret the significance of clinical trials that are discontinued early --Influence clinician behavior to improve patient care --Apply key strategies for teaching evidence-based medicine Also look for JMAAevidence.com, a new interactive database for the best practice of evidence based medicine.

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