Small Memory Software Patterns For Systems With Limited Memory Software Patterns Series

#small memory software patterns #limited memory systems #software design patterns #memory efficient software #resource constrained software

Explore essential software patterns specifically designed for systems operating under strict memory constraints. This series provides valuable insights and techniques for developing robust and efficient software, directly addressing the unique challenges of limited memory environments.

Small Memory Software

The phenomenal increases in processing power and memory capacity of computing hardware over recent years have allowed manufacturers to produce smaller and smaller computer systems such as palmtop PCs, smart cards and embedded control systems on domestic and industrial appliances. New techniques such as dynamic memory management and object-orientation help programming but tend to require additional memory. Standard programming techniques do not cope with these limited memory-capacity environments. This book will provide practical help for programmers developing software for this kind of environment. The major content is a series of patterns developed by the authors based on solutions which have been found to work in real-life situations. They range from small system design patterns and process management patterns, to patterns for User Interface development, compression and memory storage. This book will appeal to developers using Windows CE or building mobile telephones, smart cards, embedded devices, set-top computers - in short, all programmers working with memory-constrained systems.

Small Memory Software

This workbook approach deepens understanding, builds confidence, and strengthens readers' skills. It covers all five categories of design pattern intent: interfaces, responsibility, construction, operations, and extensions.

Design Patterns Java Workbook

bull; bull;Extends the proven concept of design patterns to the relatively new field of .NET design and development bull;Part of the acclaimed Addison-Wesley Software Patterns Series, with John Vlissides as series editor bull;Includes helpful primers on XML and web services as well as thorough coverage of debugging, exceptions, error handling, and architecture

NET Patterns

Professionals in the interdisciplinary field of computer science focus on the design, operation, and maintenance of computational systems and software. Methodologies and tools of engineering are utilized alongside the technological advancements of computer applications to develop efficient and precise databases of information. The Handbook of Research on Innovations in Systems and Software Engineering combines relevant research from all facets of computer programming to provide a comprehensive look at the challenges and changes in the field. With information spanning topics such as design models, cloud computing, and security, this handbook is an essential reference source for academicians, researchers, practitioners, and students interested in the development and design of improved and effective technologies.

Handbook of Research on Innovations in Systems and Software Engineering

This revised and enlarged edition of a classic in Old Testament scholarship reflects the most up-to-date research on the prophetic books and offers substantially expanded discussions of important new insight on Isaiah and the other prophets.

Real-time Design Patterns

Stereotypes portray software engineers as a reckless lot, and stereotypes paint software configuration management (SCM) devotees as inflexible. Based on these impressions, it is no wonder that projects can be riddled with tension! The truth probably lies somewhere in between these stereotypes, and this book shows how proven SCM practices can foster a healthy team-oriented culture that produces better software. The authors show that workflow, when properly managed, can avert delays, morale problems, and cost overruns. A patterns approach (proven solutions to recurring problems) is outlined so that SCM can be easily applied and successfully leveraged in small to medium sized organizations. The patterns are presented with an emphasis on practicality. The results speak for themselves: improved processes and a motivated workforce that synergize to produce better quality software.

Software Configuration Management Patterns

This book constitutes the refereed proceedings of the 6th International Conference on Product Focused Software Process Improvement, PROFES 2005, held in Oulu, Finland in June 2005. The 44 revised full papers presented were carefully reviewed and selected and constitute a balanced mix of academic and industrial aspects. The papers are organized in topical sections on software process improvement, software quality, mobile and wireless applications, requirements engineering, industrial experiences, process analysis, process modeling, SPI methods and tools, experimental software engineering, validation and verification, agile methods, and measurement.

Product Focused Software Process Improvement

The popularity of an increasing number of mobile devices, such as PDAs, laptops, smart phones, and tablet computers, has made the mobile device the central method of communication in many societies. These devices may be used as electronic wallets, social networking tools, or may serve as a person’s main access point to the World Wide Web. The Handbook of Research on Mobile Software Engineering: Design, Implementation, and Emergent Applications highlights state-of-the-art research concerning the key issues surrounding current and future challenges associated with the software engineering of mobile systems and related emergent applications. This handbook addresses gaps in the literature within the area of software engineering and the mobile computing world.

Handbook of Research on Mobile Software Engineering: Design, Implementation, and Emergent Applications

This book constitutes the thoroughly refereed joint post-proceedings of four international workshops held in conjunction with the 21st International Conference on Conceptual Modeling, ER 2002, in Tampere, Finland in October 2002. The 38 revised full papers presented were carefully selected and improved during two rounds of reviewing and revision. The papers are organized in topical sections on management of time and changes in information systems; architectures, models, and tools for systems evolution; conceptual modeling approaches to mobile information systems development; quality of conceptual models; requirements and entity relationship models; class models and architectures; Web and interactive models; processes, models, and Web services; e-business methods and technologies; and success factors for conceptual modeling in e-business.

Advanced Conceptual Modeling Techniques

The IFIP TC-10 Working Conference on Distributed and Parallel Embedded Systems (DIPES 2004) brings together experts from industry and academia to discuss recent developments in this important and growing field in the splendid city of Toulouse, France. The ever decreasing price/performance ratio of microcontrollers makes it economically attractive to replace more and more conventional mechanical or electronic control systems within many products by embedded real-time computer systems. An embedded real-time computer system is always part of a well-specified larger system, which we call an intelligent product. Although most intelligent products start out as stand-alone units, many of them are required to interact with other systems at a later stage. At present, many industries are in the middle of this transition from stand-alone products to networked embedded systems. This transition requires reflection and architecting: The complexity of the evolving distributed artifact can only be controlled, if careful planning and principled design methods replace the - hoc engineering of the first version of many standalone embedded products.

Design Methods and Applications for Distributed Embedded Systems

Expert advice on C programming is hard to find. While much help is available for object-oriented programming languages, there's surprisingly little for the C language. With this hands-on guide, beginners and experienced C programmers alike will find guidance about design decisions, including how to apply them bit by bit to running code examples when building large-scale programs. Christopher Preschern, a leading member of the design patterns community, answers questions such as how to structure C programs, cope with error handling, or design flexible interfaces. Whether you're looking for one particular pattern or an overview of design options for a specific topic, this book shows you how to implement hands-on design knowledge specifically for the C programming language. You'll find design patterns for: Error handling Returning error information Memory management Returning data from C functions Data lifetime and ownership Flexible APIs Flexible iterator interfaces Organizing files in modular programs Escaping #ifdef Hell

Fluent C

The complexity of most real-time and embedded systems often exceeds that of other types of systems since, in addition to the usual spectrum of problems inherent in software, they need to deal with the complexities of the physical world. That world—as the proverbial Mr. Murphy tells us—is an unpredictable and often unfriendly place. Consequently, there is a very strong motivation to investigate and apply advanced design methods and technologies that could simplify and improve the reliability of real-time software design and implementation. As a result, from the first versions of UML issued in the mid 1990's, designers of embedded and real-time systems have taken to UML with vigour and enthusiasm. However, the dream of a complete, model-driven design flow from specification through automated, optimised code generation, has been difficult to realise without some key improvements in UML semantics and syntax, specifically targeted to the real-time systems problem. With the enhancements in UML that have been proposed and are near standardisation with UML 2. 0, many of these improvements have been made. In the Spring of 2003, adoption of a formalised UML 2. 0 specification by the members of the Object Management Group (OMG) seems very close. It is therefore very appropriate to review the status of UML as a set of notations for embedded real-time systems - both the state of the art and best practices achieved up to this time with UML of previous generations - and where the changes embodied in the 2.

UML for Real

The first volume of the POSA pattern series introduced a broad-spectrum of general-purpose patterns in software design and architecture. The second narrowed the focus to fundamental patterns for building sophisticated concurrent and networked software systems and applications. This volume uses design patterns to present techniques for implementing effective resource management in a system. The patterns are covered in detail making use of several examples providing directions to the readers on how to implement the presented patterns. Additionally, the volume presents a thorough introduction into resource management and a case study where the patterns are applied to the domain of mobile radio networks. The patterns are grouped by different areas of resource management and hence address the complete lifecycle of resources: resource acquisition, coordination and release.

Pattern-Oriented Software Architecture, Patterns for Resource Management

Advancements in technology have allowed for the creation of new tools and innovations that can improve different aspects of life. These applications can be utilized across different technological platforms. Application Development and Design: Concepts, Methodologies, Tools, and Applications is a comprehensive reference source for the latest scholarly material on trends, techniques, and uses of various technology applications and examines the benefits and challenges of these computational developments. Highlighting a range of pertinent topics such as software design, mobile applications, and web applications, this multi-volume book is ideally designed for researchers, academics, engineers, professionals, students, and practitioners interested in emerging technology applications.

Application Development and Design: Concepts, Methodologies, Tools, and Applications

A recent survey stated that 52% of embedded projects are late by 4-5 months. This book can help get those projects in on-time with design patterns. The author carefully takes into account the special concerns found in designing and developing embedded applications specifically concurrency, communication, speed, and memory usage. Patterns are given in UML (Unified Modeling Language) with examples including ANSI C for direct and practical application to C code. A basic C knowledge is a prerequisite for the book while UML notation and terminology is included. General C programming books do not include discussion of the contraints found within embedded system design. The practical examples give the reader an understanding of the use of UML and OO (Object Oriented) designs in a resource-limited environment. Also included are two chapters on state machines. The beauty of this book is that it can help you today. . Design Patterns within these pages are immediately applicable to your project Addresses embedded system design concerns such as concurrency, communication, and memory usage Examples contain ANSI C for ease of use with C programming code

Design Patterns for Embedded Systems in C

Most security books are targeted at security engineers and specialists. Few show how build security into software. None breakdown the different concerns facing security at different levels of the system: the enterprise, architectural and operational layers. Security Patterns addresses the full spectrum of security in systems design, using best practice solutions to show how to integrate security in the broader engineering process. Essential for designers building large-scale systems who want best practice solutions to typical security problems Real world case studies illustrate how to use the patterns in specific domains For more information visit www.securitypatterns.org

Security Patterns

Designing Distributed Control Systems presents 80 patterns for designing distributed machine control system software architecture (forestry machinery, mining drills, elevators, etc.). These patterns originate from state-of-the-art systems from market-leading companies, have been tried and tested, and will address typical challenges in the domain, such as long lifecycle, distribution, real-time and fault tolerance. Each pattern describes a separate design problem that needs to be solved. Solutions are provided, with consequences and trade-offs. Each solution will enable piecemeal growth of the design. Finding a solution is easy, as the patterns are divided into categories based on the problem field the pattern tackles. The design process is guided by different aspects of quality, such as performance and extendibility, which are included in the pattern descriptions. The book also contains an example software architecture designed by leading industry experts using the patterns in the book. The example system introduces the reader to the problem domain and demonstrates how the patterns can be used in a practical system design process. The example architecture shows how useful a toolbox the patterns provide for both novices and experts, guiding the system design process from its beginning to the finest details. Designing distributed machine control systems with patterns ensures high quality in the final product. High-quality systems will improve revenue and guarantee customer satisfaction. As market need changes, the desire to produce a quality machine is not only a primary concern, there is also a need for easy maintenance, to improve efficiency and productivity, as well as the growing importance of environmental values; these all impact machine design. The software of work machines needs to be designed with these new requirements in mind. Designing Distributed Control Systems presents patterns to help tackle these challenges. With proven methodologies from the expert author team, they show readers how to improve the quality and efficiency of distributed control systems.

Designing Distributed Control Systems

This book constitutes the refereed proceedings of the Second International Conference on Image Analysis and Recognition, ICIAR 2005, held in Toronto, Canada, in September 2005.The 153 revised full papers presented together with 2 invited papers were carefully reviewed and selected from 295 submissions. The papers are organized in topical sections on image segmentation, image and video processing and analysis, image and video coding, shape and matching, image description and recognition, image retrieval and indexing, 3D imaging, morphology, colour analysis, texture analysis, motion analysis, tracking, biomedical applications, face recognition and biometrics, image secret sharing, single-sensor imaging, and real-time imaging.

Image Analysis And Recognition

Developing Services for the Wireless Internet offers state-of-the-art technological knowledge and practical know-how to practitioners – project managers, software architects and designers, process engineers and quality assurance workers. The book supports the developers of services and applications for mobile phones, PDAs and smart phones. This new emerging domain is characterized by a very fast pace of change in the underlying technology, exposing products and applications to a constant risk of obsolescence. The relative youth of this field means that knowledge is comparatively limited. The book identifies an approach to mitigate the above risks by focusing on: The development process, the underlying technology and its effects on connectivity, and software architectures. It provides an essential tool kit for all working in this field.

Developing Services for the Wireless Internet

The long awaited fifth volume in a collection of key practices for pattern languages and design.

Pattern Languages of Program Design 5

Nowadays, embedded systems - the computer systems that are embedded in various kinds of devices and play an important role of specific control functions, have permitted various aspects of industry. Therefore, we can hardly discuss our life and society from now onwards without referring to embedded systems. For wide-ranging embedded systems to continue their growth, a number of high-quality fundamental and applied researches are indispensable. This book contains 19 excellent chapters and addresses a wide spectrum of research topics on embedded systems, including basic researches, theoretical studies, and practical work. Embedded systems can be made only after fusing miscellaneous technologies together. Various technologies condensed in this book will be helpful to researchers and engineers around the world.

Embedded Systems

As networks, devices, and systems continue to evolve, software engineers face the unique challenge of creating reliable distributed applications within frequently changing environments. C++ Network Programming, Volume 1, provides practical solutions for developing and optimizing complex distributed systems using the ADAPTIVE Communication Environment (ACE), a revolutionary open-source framework that runs on dozens of hardware platforms and operating systems. This book guides software professionals through the traps and pitfalls of developing efficient, portable, and flexible networked applications. It explores the inherent design complexities of concurrent networked applications and the tradeoffs that must be considered when working to master them. C++ Network Programming begins with an overview of the issues and tools involved in writing distributed concurrent applications. The book then provides the essential design dimensions, patterns, and principles needed to develop flexible and efficient concurrent networked applications. The book's expert author team shows you how to enhance design skills while applying C++ and patterns effectively to develop object-oriented networked applications. Readers will find coverage of: C++ network programming, including an overview and strategies for addressing common development challenges The ACE Toolkit Connection protocols, message exchange, and message-passing versus shared memory Implementation methods for reusable networked application services Concurrency in object-oriented network programming Design principles and patterns for ACE wrapper facades With this book, C++ developers have at their disposal the most complete toolkit available for developing successful, multiplatform, concurrent networked applications with ease and efficiency.

C++ Network Programming, Volume I

More and more Agile projects are seeking architectural roots as they struggle with complexity and scale - and they're seeking lightweight ways to do it Still seeking? In this book the authors help you to find your own path Taking cues from Lean development, they can help steer your project toward practices with longstanding track records Up-front architecture? Sure. You can deliver an architecture as code that compiles and that concretely guides development without bogging it down in a mass of documents and guesses about the implementation Documentation? Even a whiteboard diagram, or a CRC card, is documentation: the goal isn't to avoid documentation, but to document just the right things in just the right amount Process? This all works within the frameworks of Scrum, XP, and other Agile approaches

Lean Architecture

With forewords by Jan Bosch, Nokia and Antero Taivalsaari, Sun Microsystems. Learn how to programme the mobile devices of the future! The importance of mobile systems programming has emerged over the recent years as a new domain in software development. The design of software that runs in a mobile device requires that developers combine the rules applicable in embedded environment; memory-awareness, limited performance, security, and limited resources with features that are needed in workstation environment; modifiability, run-time extensions, and rapid application development. Programming Mobile Devices is a comprehensive, practical introduction to programming mobile systems. The book is a platform independent approach to programming mobile devices: it does not focus on specific technologies, and devices, instead it evaluates the component areas and issues that are common to all mobile software platforms. This text will enable the designer to programme mobile devices by mastering both hardware-aware and application-level software, as well as the main principles that guide their design. Programming Mobile Devices: Provides a complete and authoritative overview of programming mobile systems. Discusses the major issues surrounding mobile systems programming; such as understanding of embedded systems and workstation programming. Covers memory management, the concepts of applications, dynamically linked libraries, concurrency, handling local resources, networking and mobile devices as well as security features. Uses generic examples from JavaTM and Symbian OS to illustrate the principles of mobile device programming. Programming Mobile Devices is essential reading for graduate and advanced undergraduate students, academic and industrial researchers in the field as well as software developers, and programmers.

Programming Mobile Devices

This book examines innovation in the fields of computer engineering and networking, and explores important, state-of-the-art developments in areas such as artificial intelligence, machine learning, information analysis and communication. It gathers papers presented at the 8th International Conference on Computer Engineering and Networks (CENet2018), held in Shanghai, China on August 17–19, 2018. • Explores emerging topics in computer engineering and networking, along with their applications • Discusses how to improve productivity by using the latest advanced technologies • Examines innovation in the fields of computer engineering and networking

The 8th International Conference on Computer Engineering and Networks (CENet2018)

The first part of this book discusses the mobile games industry, and includes analysis of why the mobile industry differs from other sectors of the games market, a discussion of the sales of mobile games, their types, the gamers who play them, and how the games are sold. The second part describes key aspects of writing games for Symbian smartphones using Symbian C++ and native APIs. The chapters cover the use of graphics and audio, multiplayer game design, the basics of writing a game loop using Symbian OS active objects, and general good practice. There is also a chapter covering the use of hardware APIs, such as the camera and vibra. Part Three covers porting games to Symbian OS using C or C++, and discusses the standards support that Symbian OS provides,and some of the middleware solutions available. A chapter about the N-Gage platform discusses how Nokia is pioneering the next generation of mobile games, by providing a platform SDK for professional games developers to port games rapidly and effectively. The final part of the book discusses how to create mobile games for Symbian smartphones using java ME, Doja (for Japan) or Flash Lite 2. This book will help you if you are: * a C++ developer familiar with mobile development but new to the games market * a professional games developer wishing to port your games to run on Symbian OS platforms such as S60 and UIQ * someone who is interested in creating C++, Java ME or Flash Lite games for Symbian smartphones. This book shows how to create mobile games for Symbian smartphones such as S60 3rd Edition, UIQ3 or FOMA devices. It includes contributions from a number of experts in the mobile games industry,

including Nokia's N-gage team, Ideaworks3D, and ZingMagic, as well as academics leading the field of innovative mobile experiences.

Games on Symbian OS

A comprehensive guide with extensive coverage on concepts such as OOP, functional programming, generic programming, and STL along with the latest features of C++ Key FeaturesDelve into the core patterns and components of C++ in order to master application designLearn tricks, techniques, and best practices to solve common design and architectural challenges Understand the limitation imposed by C++ and how to solve them using design patternsBook Description C++ is a general-purpose programming language designed with the goals of efficiency, performance, and flexibility in mind. Design patterns are commonly accepted solutions to well-recognized design problems. In essence, they are a library of reusable components, only for software architecture, and not for a concrete implementation. The focus of this book is on the design patterns that naturally lend themselves to the needs of a C++ programmer, and on the patterns that uniquely benefit from the features of C++, in particular, the generic programming. Armed with the knowledge of these patterns, you will spend less time searching for a solution to a common problem and be familiar with the solutions developed from experience, as well as their advantages and drawbacks. The other use of design patterns is as a concise and an efficient way to communicate. A pattern is a familiar and instantly recognizable solution to specific problem; through its use, sometimes with a single line of code, we can convey a considerable amount of information. The code conveys: "This is the problem we are facing, these are additional considerations that are most important in our case; hence, the following well-known solution was chosen." By the end of this book, you will have gained a comprehensive understanding of design patterns to create robust, reusable, and maintainable code. What you will learnRecognize the most common design patterns used in C++Understand how to use C++ generic programming to solve common design problemsExplore the most powerful C++ idioms, their strengths, and drawbacksRediscover how to use popular C++ idioms with generic programmingUnderstand the impact of design patterns on the program’s performanceWho this book is for This book is for experienced C++ developers and programmers who wish to learn about software design patterns and principles and apply them to create robust, reusable, and easily maintainable apps.

Hands-On Design Patterns with C++

Provides information on designing effective security mechanisms for e-commerce sites, covering such topics as cryptography, authentication, information classification, threats and attacks, and certification.

Web Commerce Security

Exploit various design patterns to master the art of solving problems using Python Key Features Master the application design using the core design patterns and latest features of Python 3.7 Learn tricks to solve common design and architectural challenges Choose the right plan to improve your programs and increase their productivity Book Description Python is an object-oriented scripting language that is used in a wide range of categories. In software engineering, a design pattern is an elected solution for solving software design problems. Although they have been around for a while, design patterns remain one of the top topics in software engineering, and are a ready source for software developers to solve the problems they face on a regular basis. This book takes you through a variety of design patterns and explains them with real-world examples. You will get to grips with low-level details and concepts that show you how to write Python code, without focusing on common solutions as enabled in Java and C++. You'll also fnd sections on corrections, best practices, system architecture, and its designing aspects. This book will help you learn the core concepts of design patterns and the way they can be used to resolve software design problems. You'll focus on most of the Gang of Four (GoF) design patterns, which are used to solve everyday problems, and take your skills to the next level with reactive and functional patterns that help you build resilient, scalable, and robust applications. By the end of the book, you'll be able to effciently address commonly faced problems and develop applications, and also be comfortable working on scalable and maintainable projects of any size. What you will learn Explore Factory Method and Abstract Factory for object creation Clone objects using the Prototype pattern Make incompatible interfaces compatible using the Adapter pattern Secure an interface using the Proxy pattern Choose an algorithm dynamically using the Strategy pattern Keep the logic decoupled from the UI using the MVC pattern Leverage the Observer pattern to understand reactive programming Explore patterns for cloud-native, microservices, and serverless architectures Who this book is for This book

is for intermediate Python developers. Prior knowledge of design patterns is not required to enjoy this book.

Mastering Python Design Patterns

Software documentation forms the basis for all communication relating to a software project. To be truly effective and usable, it should be based on what needs to be known. Agile Documentation provides sound advice on how to produce lean and lightweight software documentation. It will be welcomed by all project team members who want to cut out the fat from this time consuming task. Guidance given in pattern form, easily digested and cross-referenced, provides solutions to common problems. Straightforward advice will help you to judge: What details should be left in and what left out When communication face-to-face would be better than paper or online How to adapt the documentation process to the requirements of individual projects and build in change How to organise documents and make them easily accessible When to use diagrams rather than text How to choose the right tools and techniques How documentation impacts the customer Better than offering pat answers or prescriptions, this book will help you to understand the elements and processes that can be found repeatedly in good project documentation and which can be shaped and designed to address your individual circumstance. The author uses real-world examples and utilises agile principles to provide an accessible, practical pattern-based guide which shows how to produce necessary and high quality documentation.

Agile Documentation

bull; The patterns presented in this book are platform and product independent bull; Provides answers to data challenges in architecture, resource, input and output, cache, and concurrency bull; Defines a consistent vocabulary that readers can use to discuss data access issues

Data Access Patterns

This book provides a systematic and unified methodology, including basic principles and reusable processes, for dynamic memory management (DMM) in embedded systems. The authors describe in detail how to design and optimize the use of dynamic memory in modern, multimedia and network applications, targeting the latest generation of portable embedded systems, such as smartphones. Coverage includes a variety of design and optimization topics in electronic design automation of DMM, from high-level software optimization to microarchitecture-level hardware support. The authors describe the design of multi-layer dynamic data structures for the final memory hierarchy layers of the target portable embedded systems and how to create a low-fragmentation, cost-efficient, dynamic memory management subsystem out of configurable components for the particular memory allocation and de-allocation patterns for each type of application. The design methodology described in this book is based on propagating constraints among design decisions from multiple abstraction levels (both hardware and software) and customizing DMM according to application-specific data access and storage behaviors.

Dynamic Memory Management for Embedded Systems

This fourth volume in the POSA series explores the concepts underlying patterns. The goal is to bring together the POSA pattern theory in one volume allowing readers to deepen their understanding of what patterns are, what they are not, and how to use them successfully.

Pattern-oriented Software Architecture: Patterns for resource management

Design and develop high-performance, reusable, and maintainable applications using traditional and modern Julia patterns with this comprehensive guide Key FeaturesExplore useful design patterns along with object-oriented programming in Julia 1.0Implement macros and metaprogramming techniques to make your code faster, concise, and efficientDevelop the skills necessary to implement design patterns for creating robust and maintainable applicationsBook Description Design patterns are fundamental techniques for developing reusable and maintainable code. They provide a set of proven solutions that allow developers to solve problems in software development quickly. This book will demonstrate how to leverage design patterns with real-world applications. Starting with an overview of design patterns and best practices in application design, you'll learn about some of the most fundamental Julia features such as modules, data types, functions/interfaces, and metaprogramming. You'll then get to grips with the modern Julia design patterns for building large-scale applications with a focus

on performance, reusability, robustness, and maintainability. The book also covers anti-patterns and how to avoid common mistakes and pitfalls in development. You'll see how traditional object-oriented patterns can be implemented differently and more effectively in Julia. Finally, you'll explore various use cases and examples, such as how expert Julia developers use design patterns in their open source packages. By the end of this Julia programming book, you'll have learned methods to improve software design, extensibility, and reusability, and be able to use design patterns efficiently to overcome common challenges in software development. What you will learnMaster the Julia language features that are key to developing large-scale software applicationsDiscover design patterns to improve overall application architecture and designDevelop reusable programs that are modular, extendable, performant, and easy to maintainWeigh up the pros and cons of using different design patterns for use casesExplore methods for transitioning from object-oriented programming to using equivalent or more advanced Julia techniquesWho this book is for This book is for beginner to intermediate-level Julia programmers who want to enhance their skills in designing and developing large-scale applications.

Hands-On Design Patterns and Best Practices with Julia

Memory Design Techniques for Low Energy Embedded Systems centers one of the most outstanding problems in chip design for embedded application. It guides the reader through different memory organizations and technologies and it reviews the most successful strategies for optimizing them in the power and performance plane.

Memory Design Techniques for Low Energy Embedded Systems

Beginning and experienced programmers will use this comprehensive guide to persistent memory programming. You will understand how persistent memory brings together several new software/hardware requirements, and offers great promise for better performance and faster application startup times—a huge leap forward in byte-addressable capacity compared with current DRAM offerings. This revolutionary new technology gives applications significant performance and capacity improvements over existing technologies. It requires a new way of thinking and developing, which makes this highly disruptive to the IT/computing industry. The full spectrum of industry sectors that will benefit from this technology include, but are not limited to, in-memory and traditional databases, AI, analytics, HPC, virtualization, and big data. Programming Persistent Memory describes the technology and why it is exciting the industry. It covers the operating system and hardware requirements as well as how to create development environments using emulated or real persistent memory hardware. The book explains fundamental concepts; provides an introduction to persistent memory programming APIs for C, C++, JavaScript, and other languages; discusses RMDA with persistent memory; reviews security features; and presents many examples. Source code and examples that you can run on your own systems are included. What You'll Learn Understand what persistent memory is, what it does, and the value it brings to the industry Become familiar with the operating system and hardware requirements to use persistent memory Know the fundamentals of persistent memory programming: why it is different from current programming methods, and what developers need to keep in mind when programming for persistence Look at persistent memory application development by example using the Persistent Memory Development Kit (PMDK)Design and optimize data structures for persistent memoryStudy how real-world applications are modified to leverage persistent memoryUtilize the tools available for persistent memory programming, application performance profiling, and debugging Who This Book Is For C, C++, Java, and Python developers, but will also be useful to software, cloud, and hardware architects across a broad spectrum of sectors, including cloud service providers, independent software vendors, high performance compute, artificial intelligence, data analytics, big data, etc.

Programming Persistent Memory

Proceedings of SPIE present the original research papers presented at SPIE conferences and other high-quality conferences in the broad-ranging fields of optics and photonics. These books provide prompt access to the latest innovations in research and technology in their respective fields. Proceedings of SPIE are among the most cited references in patent literature.

ICMIT 2005

Learn idiomatic, efficient, clean, and extensible Go design and concurrency patterns by using TDD About This Book A highly practical guide filled with numerous examples unleashing the power of design patterns with Go. Discover an introduction of the CSP concurrency model by explaining GoRoutines

and channels. Get a full explanation, including comprehensive text and examples, of all known GoF design patterns in Go. Who This Book Is For The target audience is both beginner- and advanced-level developers in the Go programming language. No knowledge of design patterns is expected. What You Will Learn All basic syntax and tools needed to start coding in Go Encapsulate the creation of complex objects in an idiomatic way in Go Create unique instances that cannot be duplicated within a program Understand the importance of object encapsulation to provide clarity and maintainability Prepare cost-effective actions so that different parts of the program aren't affected by expensive tasks Deal with channels and GoRoutines within the Go context to build concurrent application in Go in an idiomatic way In Detail Go is a multi-paradigm programming language that has built-in facilities to create concurrent applications. Design patterns allow developers to efficiently address common problems faced during developing applications. Go Design Patterns will provide readers with a reference point to software design patterns and CSP concurrency design patterns to help them build applications in a more idiomatic, robust, and convenient way in Go. The book starts with a brief introduction to Go programming essentials and quickly moves on to explain the idea behind the creation of design patterns and how they appeared in the 90's as a common "language" between developers to solve common tasks in object-oriented programming languages. You will then learn how to apply the 23 Gang of Four (GoF) design patterns in Go and also learn about CSP concurrency patterns, the "killer feature" in Go that has helped Google develop software to maintain thousands of servers. With all of this the book will enable you to understand and apply design patterns in an idiomatic way that will produce concise, readable, and maintainable software. Style and approach This book will teach widely used design patterns and best practices with Go in a step-by-step manner. The code will have detailed examples, to allow programmers to apply design patterns in their day-to-day coding.

Proceedings of the 7th European Conference on Pattern Languages of Programs, 2002

Go Design Patterns