

Coupling And Cohesion In Software Engineering With Examples

Software Development
Design Patterns Explained
Proceedings, Seventh International Software Metrics Symposium
Business Process Management
Software Engineering And Quality Assurance
Introduction to Object-Oriented Programming
Information Science and Applications
Software Engineering Metrics
Distributed Applications Engineering
Fundamentals of Software Architecture
Sonar Code Quality Testing Essentials
Principles of Package Design
Software Measurement and Estimation
Advances in Software Engineering
Guide to Efficient Software Design
Software Quality Assurance
Code Complete
Measurement of Coupling and Cohesion of Software
Problem Solving & Programming Concepts
Stability, Coupling, and Cohesion of Object-oriented Software Systems
Structured Design
Reliable Software Through Composite Design
Software Architect's Handbook
The Practical Guide to Structured Systems Design
Real-World Software Development
Microsoft .NET - Architecting Applications for the Enterprise
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An Empirical Study of Run-time Coupling and Cohesion
Software Metrics
ECOOP 2011--Object-Oriented Programming
A Metrics Suite for Object Oriented Design
Building Evolutionary Architectures
201 Principles of Software Development
Enterprise API Management
A Software Engineering Approach to LabVIEW
Adaptive Code
Building Modular Cloud Apps with

OSGiA Software Engineering Approach to LabVIEW Software Architecture with Python Software Engineering Design Contemporary Computing

Software Development

Software Quality Assurance in Large Scale and Complex Software-intensive Systems presents novel and high-quality research related approaches that relate the quality of software architecture to system requirements, system architecture and enterprise-architecture, or software testing. Modern software has become complex and adaptable due to the emergence of globalization and new software technologies, devices and networks. These changes challenge both traditional software quality assurance techniques and software engineers to ensure software quality when building today (and tomorrow's) adaptive, context-sensitive, and highly diverse applications. This edited volume presents state of the art techniques, methodologies, tools, best practices and guidelines for software quality assurance and offers guidance for future software engineering research and practice. Each contributed chapter considers the practical application of the topic through case studies, experiments, empirical validation, or systematic comparisons with other approaches already in practice. Topics of interest include, but are not limited, to: quality attributes of system/software architectures; aligning enterprise, system, and software architecture from the point of view of total quality; design

decisions and their influence on the quality of system/software architecture; methods and processes for evaluating architecture quality; quality assessment of legacy systems and third party applications; lessons learned and empirical validation of theories and frameworks on architectural quality; empirical validation and testing for assessing architecture quality. Focused on quality assurance at all levels of software design and development Covers domain-specific software quality assurance issues e.g. for cloud, mobile, security, context-sensitive, mash-up and autonomic systems Explains likely trade-offs from design decisions in the context of complex software system engineering and quality assurance Includes practical case studies of software quality assurance for complex, adaptive and context-critical systems

Design Patterns Explained

Proceedings, Seventh International Software Metrics Symposium

Create more robust, more flexible LabVIEW applications--through software design principles! Writing LabVIEW software to perform a complex task is never easy--especially when those last-minute feature requests cause a complexity

explosion in your system, forcing you to rework much of your code! Jon Conway and Steve Watts offer a better solution: LCOD-LabVIEW Component Oriented Design--which, for the first time, applies the theories and principles of software design to LabVIEW programming. The material is presented in a lighthearted, engaging manner that makes learning enjoyable, even if you're not a computer scientist. LCOD software engineering techniques make your software more robust and better able to handle complexity--by making it simpler! Even large, industrial-grade applications become manageable. Design to embrace flexibility first, making changes and bug fixes much less painful Pragmatic discussion of the authors' tried and tested techniques, written by--and for--working programmers Covers design principles; LCOD overview, implementation, and complementary techniques; engineering essentials; style issues; and more Complete with practical advice on requirements gathering, prototyping, user interface design, and rich with examples Work through an example LCOD project (all code included on companion Web site) to tie the lessons together This book is intended for test engineers, system integrators, electronics engineers, software engineers, and other intermediate to advanced LabVIEW programmers. None of the methods discussed are complex, so users can benefit as soon as they are proficient with the syntax of LabVIEW.Go to the companion Web site located at [http: //author.phptr.com/watts/](http://author.phptr.com/watts/) for full source code and book updates.

Business Process Management

Software -- Software Engineering.

Software Engineering And Quality Assurance

Architect and design highly scalable, robust, clean, and highly performant applications in Python About This Book Identify design issues and make the necessary adjustments to achieve improved performance Understand practical architectural quality attributes from the perspective of a practicing engineer and architect using Python Gain knowledge of architectural principles and how they can be used to provide accountability and rationale for architectural decisions Who This Book Is For This book is for experienced Python developers who are aspiring to become the architects of enterprise-grade applications or software architects who would like to leverage Python to create effective blueprints of applications. What You Will Learn Build programs with the right architectural attributes Use Enterprise Architectural Patterns to solve scalable problems on the Web Understand design patterns from a Python perspective Optimize the performance testing tools in Python Deploy code in remote environments or on the Cloud using Python Secure architecture applications in Python In Detail This book starts off by explaining how Python fits into an application architecture. As you move along, you will understand the architecturally significant demands and how to determine them. Later, you'll get a complete understanding of the different architectural quality

requirements that help an architect to build a product that satisfies business needs, such as maintainability/reusability, testability, scalability, performance, usability, and security. You will use various techniques such as incorporating DevOps, Continuous Integration, and more to make your application robust. You will understand when and when not to use object orientation in your applications. You will be able to think of the future and design applications that can scale proportionally to the growing business. The focus is on building the business logic based on the business process documentation and which frameworks are to be used when. We also cover some important patterns that are to be taken into account while solving design problems as well as those in relatively new domains such as the Cloud. This book will help you understand the ins and outs of Python so that you can make those critical design decisions that not just live up to but also surpass the expectations of your clients. Style and approach Filled with examples and use cases, this guide takes a no-nonsense approach to help you with everything it takes to become a successful software architect.

Introduction to Object-Oriented Programming

Apply design principles to your classes, preparing them for reuse. You will use package design principles to create packages that are just right in terms of cohesion and coupling, and are user- and maintainer-friendly at the same time. The first part of this book walks you through the five SOLID principles that will help

you improve the design of your classes. The second part introduces you to the best practices of package design, and covers both package cohesion principles and package coupling principles. Cohesion principles show you which classes should be put together in a package, when to split packages, and if a combination of classes may be considered a "package" in the first place. Package coupling principles help you choose the right dependencies and prevent wrong directions in the dependency graph of your packages. What You'll Learn Apply the SOLID principles of class design Determine if classes belong in the same package Know whether it is safe for packages to depend on each other Who This Book Is For Software developers with a broad range of experience in the field, who are looking for ways to reuse, share, and distribute their code

Information Science and Applications

Software Engineering Metrics

This is a step-by-step tutorial enriched with practical examples and the necessary screenshots for easy and quick learning. This book is for you if you are a Java developer or a Team Manager familiar with Java and want to ensure the quality of your code using Sonar. You should have a background with Java and unit testing in

general.

Distributed Applications Engineering

Fundamentals of Software Architecture

A comprehensive guide to exploring software architecture concepts and implementing best practices Key Features Enhance your skills to grow your career as a software architect Design efficient software architectures using patterns and best practices Learn how software architecture relates to an organization as well as software development methodology Book Description The Software Architect's Handbook is a comprehensive guide to help developers, architects, and senior programmers advance their career in the software architecture domain. This book takes you through all the important concepts, right from design principles to different considerations at various stages of your career in software architecture. The book begins by covering the fundamentals, benefits, and purpose of software architecture. You will discover how software architecture relates to an organization, followed by identifying its significant quality attributes. Once you have covered the basics, you will explore design patterns, best practices, and paradigms for efficient software development. The book discusses which factors

you need to consider for performance and security enhancements. You will learn to write documentation for your architectures and make appropriate decisions when considering DevOps. In addition to this, you will explore how to design legacy applications before understanding how to create software architectures that evolve as the market, business requirements, frameworks, tools, and best practices change over time. By the end of this book, you will not only have studied software architecture concepts but also built the soft skills necessary to grow in this field. What you will learn Design software architectures using patterns and best practices Explore the different considerations for designing software architecture Discover what it takes to continuously improve as a software architect Create loosely coupled systems that can support change Understand DevOps and how it affects software architecture Integrate, refactor, and re-architect legacy applications Who this book is for The Software Architect's Handbook is for you if you are a software architect, chief technical officer (CTO), or senior developer looking to gain a firm grasp of software architecture.

Sonar Code Quality Testing Essentials

To understand the principles and practice of software development, there is no better motivator than participating in a software project with real-world value and a life beyond the academic arena. Software Development: An Open Source Approach immerses students directly into an agile free and open source software

(FOSS) development process. It focus

Principles of Package Design

Widely considered one of the best practical guides to programming, Steve McConnell's original CODE COMPLETE has been helping developers write better software for more than a decade. Now this classic book has been fully updated and revised with leading-edge practices—and hundreds of new code samples—illustrating the art and science of software construction. Capturing the body of knowledge available from research, academia, and everyday commercial practice, McConnell synthesizes the most effective techniques and must-know principles into clear, pragmatic guidance. No matter what your experience level, development environment, or project size, this book will inform and stimulate your thinking—and help you build the highest quality code. Discover the timeless techniques and strategies that help you: Design for minimum complexity and maximum creativity Reap the benefits of collaborative development Apply defensive programming techniques to reduce and flush out errors Exploit opportunities to refactor—or evolve—code, and do it safely Use construction practices that are right-weight for your project Debug problems quickly and effectively Resolve critical construction issues early and correctly Build quality into the beginning, middle, and end of your project

Software Measurement and Estimation

Explore the latest Java-based software development techniques and methodologies through the project-based approach in this practical guide. Unlike books that use abstract examples and lots of theory, Real-World Software Development shows you how to develop several relevant projects while learning best practices along the way. With this engaging approach, junior developers capable of writing basic Java code will learn about state-of-the-art software development practices for building modern, robust and maintainable Java software. You'll work with many different software development topics that are often excluded from software develop how-to references. Featuring real-world examples, this book teaches you techniques and methodologies for functional programming, automated testing, security, architecture, and distributed systems.

Advances in Software Engineering

Guide to Efficient Software Design

Software Quality Assurance

In recent years the management of business processes has emerged as one of the major developments to ease the understanding of, communication about, and evolution of process-oriented information systems in a variety of application domains. Based on explicit representations of business processes, process stakeholders can communicate about process structure, content, and possible improvements. Formal analysis, verification and simulation techniques have the potential to show deficits and to effectively lead to better and more flexible processes. Process mining facilitates the discovery of process specifications from process logs that are readily available in many organizations. This volume of Springer's Lecture Notes in Computer Science contains the papers presented at the 2nd International Conference on Business Process Management (BPM 2004) which took place in Potsdam, Germany, in June 2004. From more than 70 submissions BPM 2004 received, 19 high-quality research papers were selected. BPM 2004 is part of a conference series that provides a forum for researchers and practitioners in all aspects of business process management. In June 2003, the 1st International Conference on Business Process Management took place in Eindhoven, The Netherlands. Its proceedings were published as Volume 2678 of Lecture Notes in Computer Science by Springer-Verlag. A previous volume (LNCS1806) on Business Process Management was based on four events devoted to this topic.

Code Complete

Salary surveys worldwide regularly place software architect in the top 10 best jobs, yet no real guide exists to help developers become architects. Until now. This book provides the first comprehensive overview of software architecture's many aspects. Aspiring and existing architects alike will examine architectural characteristics, architectural patterns, component determination, diagramming and presenting architecture, evolutionary architecture, and many other topics. Mark Richards and Neal Ford—hands-on practitioners who have taught software architecture classes professionally for years—focus on architecture principles that apply across all technology stacks. You'll explore software architecture in a modern light, taking into account all the innovations of the past decade. This book examines:

- Architecture patterns: The technical basis for many architectural decisions
- Components: Identification, coupling, cohesion, partitioning, and granularity
- Soft skills: Effective team management, meetings, negotiation, presentations, and more
- Modernity: Engineering practices and operational approaches that have changed radically in the past few years
- Architecture as an engineering discipline: Repeatable results, metrics, and concrete valuations that add rigor to software architecture

Measurement of Coupling and Cohesion of Software

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An effective, quantitative approach for estimating and managing software projects. How many people do I need? When will the quality be good enough for commercial sale? Can this really be done in two weeks? Rather than relying on instinct, the authors of *Software Measurement and Estimation* offer a new, tested approach that includes the quantitative tools, data, and knowledge needed to make sound estimations. The text begins with the foundations of measurement, identifies the appropriate metrics, and then focuses on techniques and tools for estimating the effort needed to reach a given level of quality and performance for a software project. All the factors that impact estimations are thoroughly examined, giving you the tools needed to regularly adjust and improve your estimations to complete a project on time, within budget, and at an expected level of quality. This text includes several features that have proven to be successful in making the material accessible and easy to master:

- * Simple, straightforward style and logical presentation and organization enables you to build a solid foundation of theory and techniques to tackle complex estimations
- * Examples, provided throughout the text, illustrate how to use the theory to solve real-world problems
- * Projects, included in each chapter, enable you to apply your newfound knowledge and skills
- * Techniques for effective communication of quantitative data help you convey your findings and recommendations to peers and management

Software Measurement and Estimation: A Practical Approach allows practicing software engineers and managers to better estimate, manage, and effectively communicate the plans and progress of their software projects. With its classroom-tested features, this is

an excellent textbook for advanced undergraduate-level and graduate students in computer science and software engineering. An Instructor Support FTP site is available from the Wiley editorial department.

Problem Solving & Programming Concepts

If you're an experienced Java developer in the enterprise, this practical, hands-on book shows you how to use OSGi to design, develop, and deploy modular cloud applications. You'll quickly learn how to use OSGi, through concise code examples and a set of best practices derived from the authors' experiences with real-world projects. Through the course of this book, you'll learn to develop modern web applications with tools and techniques such as RESTful Web Services, NoSQL, provisioning, elasticity, Auto Scaling, hotfixes, and automatic failover. Code samples are available from GitHub. Work with dynamic OSGi services to create modular applications Explore the basics of OSGi bundles and modular application design Learn advanced topics, including semantic versioning, integration testing, and configuring components Understand OSGi pitfalls, anti-patterns, and features you should avoid Create a modular architecture for cloud-based web applications Discover how maintainability, extensibility, scalability, and testability are affected by modular design Get a look at various options for creating web applications with a modular approach Interact with persistent storage services, including relational databases and NoSQL Examine alternatives for deploying modular applications to

the cloud

Stability, Coupling, and Cohesion of Object-oriented Software Systems

The software development ecosystem is constantly changing, providing a constant stream of new tools, frameworks, techniques, and paradigms. Over the past few years, incremental developments in core engineering practices for software development have created the foundations for rethinking how architecture changes over time, along with ways to protect important architectural characteristics as it evolves. This practical guide ties those parts together with a new way to think about architecture and time.

Structured Design

This book constitutes the refereed proceedings of the 25th European Conference on Object-Oriented Programming, ECOOP 2011, held in Lancaster, UK, in July 2011. The 26 revised full papers, presented together with three keynote lectures were carefully reviewed and selected from a total of 100 submissions. The papers cover topics such as empirical studies, mining, understanding, recommending, modularity, modelling and refactoring, aliasing and ownership; as well as memory

optimizations.

Reliable Software Through Composite Design

This work has been selected by scholars as being culturally important and is part of the knowledge base of civilization as we know it. This work is in the public domain in the United States of America, and possibly other nations. Within the United States, you may freely copy and distribute this work, as no entity (individual or corporate) has a copyright on the body of the work. Scholars believe, and we concur, that this work is important enough to be preserved, reproduced, and made generally available to the public. To ensure a quality reading experience, this work has been proofread and republished using a format that seamlessly blends the original graphical elements with text in an easy-to-read typeface. We appreciate your support of the preservation process, and thank you for being an important part of keeping this knowledge alive and relevant.

Software Architect's Handbook

A software architect's digest of core practices, pragmatically applied Designing effective architecture is your best strategy for managing project complexity—and improving your results. But the principles and practices of software

architecting—what the authors call the “science of hard decisions”—have been evolving for cloud, mobile, and other shifts. Now fully revised and updated, this book shares the knowledge and real-world perspectives that enable you to design for success—and deliver more successful solutions. In this fully updated Second Edition, you will:

- Learn how only a deep understanding of domain can lead to appropriate architecture
- Examine domain-driven design in both theory and implementation
- Shift your approach to code first, model later—including multilayer architecture
- Capture the benefits of prioritizing software maintainability
- See how readability, testability, and extensibility lead to code quality
- Take a user experience (UX) first approach, rather than designing for data
- Review patterns for organizing business logic
- Use event sourcing and CQRS together to model complex business domains more effectively
- Delve inside the persistence layer, including patterns and implementation.

The Practical Guide to Structured Systems Design

A core or supplementary text for one-semester, freshman/sophomore-level introductory courses taken by programming majors in Problem Solving for Programmers, Problem Solving for Applications, any Computer Language Course, or Introduction to Programming. Revised to reflect the most current issues in the programming industry, this widely adopted text emphasizes that problem solving is the same in all computer languages, regardless of syntax. Sprankle and Hubbard

use a generic, non-language-specific approach to present the tools and concepts required when using any programming language to develop computer applications. Designed for students with little or no computer experience — but useful to programmers at any level — the text provides step-by-step progression and consistent in-depth coverage of topics, with detailed explanations and many illustrations. Instructor Supplements (see resources tab): Instructor Manual with Solutions and Test Bank Lecture Power Point Slides Go to: www.pearsoninternationaleditions.com/sprinkle

Real-World Software Development

Microsoft .NET - Architecting Applications for the Enterprise

This proceedings volume provides a snapshot of the latest issues encountered in technical convergence and convergences of security technology. It explores how information science is core to most current research, industrial and commercial activities and consists of contributions covering topics including Ubiquitous Computing, Networks and Information Systems, Multimedia and Visualization, Middleware and Operating Systems, Security and Privacy, Data Mining and Artificial Intelligence, Software Engineering, and Web Technology. The proceedings

introduce the most recent information technology and ideas, applications and problems related to technology convergence, illustrated through case studies, and reviews converging existing security techniques. Through this volume, readers will gain an understanding of the current state-of-the-art in information strategies and technologies of convergence security. The intended readership are researchers in academia, industry, and other research institutes focusing on information science and technology.

Software Engineering

This is a practical, up-to-date guide to program and systems design, including how to use structured design tools. Can be used to produce reliable systems and to reduce the life-time costs on systems.

An Empirical Study of Run-time Coupling and Cohesion Software Metrics

Client/server and distributed technologies have made great strides since their emergence in the late 1980s to become very popular in the IT industry today. This book illustrates techniques not only for designing GUI client/server applications, but also for managing complex application environments containing both legacy

and new applications. Topics covered in this book include - The what, when and how of the three tier client/server model - Coupling and dependency: key design factors in distributed systems - Distributed application design alternatives for the enterprise - The Federated application structure for integrating the applications of the enterprise - A real-life case study of a major financial institution - Systems Architects and senior technical staff Project Managers and Software Engineers involved with or interested in client/server computing, and final year undergraduate and postgraduate students will find this book useful.

ECOOP 2011--Object-Oriented Programming

This classroom-tested textbook presents an active-learning approach to the foundational concepts of software design. These concepts are then applied to a case study, and reinforced through practice exercises, with the option to follow either a structured design or object-oriented design paradigm. The text applies an incremental and iterative software development approach, emphasizing the use of design characteristics and modeling techniques as a way to represent higher levels of design abstraction, and promoting the model-view-controller (MVC) architecture. Topics and features: provides a case study to illustrate the various concepts discussed throughout the book, offering an in-depth look at the pros and cons of different software designs; includes discussion questions and hands-on exercises that extend the case study and apply the concepts to other problem domains;

presents a review of program design fundamentals to reinforce understanding of the basic concepts; focuses on a bottom-up approach to describing software design concepts; introduces the characteristics of a good software design, emphasizing the model-view-controller as an underlying architectural principle; describes software design from both object-oriented and structured perspectives; examines additional topics on human-computer interaction design, quality assurance, secure design, design patterns, and persistent data storage design; discusses design concepts that may be applied to many types of software development projects; suggests a template for a software design document, and offers ideas for further learning. Students of computer science and software engineering will find this textbook to be indispensable for advanced undergraduate courses on programming and software design. Prior background knowledge and experience of programming is required, but familiarity in software design is not assumed.

A Metrics Suite for Object Oriented Design

Building Evolutionary Architectures

A strategy and implementation guide for building, deploying, and managing APIs
Key Features Comprehensive, end-to-end guide to business-driven enterprise APIs

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Distills years of experience with API and microservice strategies Provides detailed guidance on implementing API-led architectures in any business Book Description APIs are the cornerstone of modern, agile enterprise systems. They enable access to enterprise services from a wide variety of devices, act as a platform for innovation, and open completely new revenue streams. Enterprise API Management shows how to define the right architecture, implement the right patterns, and define the right organization model for business-driven APIs. Drawing on his experience of developing API and microservice strategies for some of the world's largest companies, Luis Weir explains how APIs deliver value across an enterprise. The book explores the architectural decisions, implementation patterns, and management practices for successful enterprise APIs, as well as providing clear, actionable advice on choosing and executing the right API strategy in your enterprise. With a relentless focus on creating business value, Luis Weir reveals an effective method for planning, building, and running business products and services with APIs. What you will learn Create API strategies to deliver business value Monetize APIs, promoting them through public marketplaces and directories Develop API-led architectures, applying best practice architecture patterns Choose between REST, GraphQL, and gRPC-style API architectures Manage APIs and microservices through the complete life cycle Deploy APIs and business products, as well as Target Operating Models Lead product-based organizations to embrace DevOps and focus on delivering business capabilities Who this book is for Architects, developers, and technology executives who want to deliver successful

API strategies that bring business value.

201 Principles of Software Development

Enterprise API Management

This book contains both relevant real-world research, as well as reviews of different areas of interest in the software engineering literature, such as clone identification. The contents of the various sections will provide a better understanding of known problems and detailed treatment of advanced topics. Consequently, the book consolidates the work and findings from leading researchers in the software research community in key areas such as maintainability, architectural recovery, code analysis, software migration, and tool support.

A Software Engineering Approach to LabVIEW

"One of the great things about the book is the way the authors explain concepts very simply using analogies rather than programming examples—this has been very inspiring for a product I'm working on: an audio-only introduction to OOP and software development." —Bruce Eckel "I would expect that readers with a basic

understanding of object-oriented programming and design would find this book useful, before approaching design patterns completely. Design Patterns Explained complements the existing design patterns texts and may perform a very useful role, fitting between introductory texts such as UML Distilled and the more advanced patterns books." -James Noble Leverage the quality and productivity benefits of patterns-without the complexity! Design Patterns Explained, Second Edition is the field's simplest, clearest, most practical introduction to patterns. Using dozens of updated Java examples, it shows programmers and architects exactly how to use patterns to design, develop, and deliver software far more effectively. You'll start with a complete overview of the fundamental principles of patterns, and the role of object-oriented analysis and design in contemporary software development. Then, using easy-to-understand sample code, Alan Shalloway and James Trott illuminate dozens of today's most useful patterns: their underlying concepts, advantages, tradeoffs, implementation techniques, and pitfalls to avoid. Many patterns are accompanied by UML diagrams. Building on their best-selling First Edition, Shalloway and Trott have thoroughly updated this book to reflect new software design trends, patterns, and implementation techniques. Reflecting extensive reader feedback, they have deepened and clarified coverage throughout, and reorganized content for even greater ease of understanding. New and revamped coverage in this edition includes Better ways to start "thinking in patterns" How design patterns can facilitate agile development using eXtreme Programming and other methods How to use commonality and

variability analysis to design application architectures The key role of testing into a patterns-driven development process How to use factories to instantiate and manage objects more effectively The Object-Pool Pattern—a new pattern not identified by the "Gang of Four" New study/practice questions at the end of every chapter Gentle yet thorough, this book assumes no patterns experience whatsoever. It's the ideal "first book" on patterns, and a perfect complement to Gamma's classic Design Patterns. If you're a programmer or architect who wants the clearest possible understanding of design patterns—or if you've struggled to make them work for you—read this book.

Adaptive Code

Concept; Foundation; Technique; Pragmatics; The real world; Extensions.

Building Modular Cloud Apps with OSGi

A Software Engineering Approach to LabVIEW

This volume constitutes the refereed proceedings of the 5th International Conference on Contemporary Computing, IC3 2010, held in Noida, India, in August

2011. The 42 revised full papers presented together with 7 short papers were carefully reviewed and selected from 162 submissions. The papers are organized in topical sections on: algorithm; applications; systems (hardware and software); biomedical informations; poster papers.

Software Architecture with Python

Create more robust, more flexible LabVIEW applications--through software design principles! Writing LabVIEW software to perform a complex task is never easy--especially when those last-minute feature requests cause a complexity explosion in your system, forcing you to rework much of your code! Jon Conway and Steve Watts offer a better solution: LCOD-LabVIEW Component Oriented Design--which, for the first time, applies the theories and principles of software design to LabVIEW programming. The material is presented in a lighthearted, engaging manner that makes learning enjoyable, even if you're not a computer scientist. LCOD software engineering techniques make your software more robust and better able to handle complexity--by making it simpler! Even large, industrial-grade applications become manageable. Design to embrace flexibility first, making changes and bug fixes much less painful Pragmatic discussion of the authors' tried and tested techniques, written by--and for--working programmers Covers design principles; LCOD overview, implementation, and complementary techniques; engineering essentials; style issues; and more Complete with practical advice on

requirements gathering, prototyping, user interface design, and rich with examples Work through an example LCOD project (all code included on companion Web site) to tie the lessons together This book is intended for test engineers, system integrators, electronics engineers, software engineers, and other intermediate to advanced LabVIEW programmers. None of the methods discussed are complex, so users can benefit as soon as they are proficient with the syntax of LabVIEW.Go to the companion Web site located at <http://author.phptr.com/watts/> for full source code and book updates.

Software Engineering Design

Write code that can adapt to changes. By applying this book's principles, you can create code that accommodates new requirements and unforeseen scenarios without significant rewrites. Gary McLean Hall describes Agile best practices, principles, and patterns for designing and writing code that can evolve more quickly and easily, with fewer errors, because it doesn't impede change. Now revised, updated, and expanded, Adaptive Code, Second Edition adds indispensable practical insights on Kanban, dependency inversion, and creating reusable abstractions. Drawing on over a decade of Agile consulting and development experience, McLean Hall has updated his best-seller with deeper coverage of unit testing, refactoring, pure dependency injection, and more. Master powerful new ways to:

- Write code that enables and complements Scrum,

Kanban, or any other Agile framework • Develop code that can survive major changes in requirements • Plan for adaptability by using dependencies, layering, interfaces, and design patterns • Perform unit testing and refactoring in tandem, gaining more value from both • Use the “golden master” technique to make legacy code adaptive • Build SOLID code with single-responsibility, open/closed, and Liskov substitution principles • Create smaller interfaces to support more-diverse client and architectural needs • Leverage dependency injection best practices to improve code adaptability • Apply dependency inversion with the Stairway pattern, and avoid related anti-patterns About You This book is for programmers of all skill levels seeking more-practical insight into design patterns, SOLID principles, unit testing, refactoring, and related topics. Most readers will have programmed in C#, Java, C++, or similar object-oriented languages, and will be familiar with core procedural programming techniques.

Contemporary Computing

Taking a learn-by-doing approach, *Software Engineering Design: Theory and Practice* uses examples, review questions, chapter exercises, and case study assignments to provide students and practitioners with the understanding required to design complex software systems. Explaining the concepts that are immediately relevant to software designers, it begins with a review of software design fundamentals. The text presents a formal top-down design process that consists of

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several design activities with varied levels of detail, including the macro-, micro-, and construction-design levels. As part of the top-down approach, it provides in-depth coverage of applied architectural, creational, structural, and behavioral design patterns. For each design issue covered, it includes a step-by-step breakdown of the execution of the design solution, along with an evaluation, discussion, and justification for using that particular solution. The book outlines industry-proven software design practices for leading large-scale software design efforts, developing reusable and high-quality software systems, and producing technical and customer-driven design documentation. It also: Offers one-stop guidance for mastering the Software Design & Construction sections of the official Software Engineering Body of Knowledge (SWEBOK®) Details a collection of standards and guidelines for structuring high-quality code Describes techniques for analyzing and evaluating the quality of software designs Collectively, the text supplies comprehensive coverage of the software design concepts students will need to succeed as professional design leaders. The section on engineering leadership for software designers covers the necessary ethical and leadership skills required of software developers in the public domain. The section on creating software design documents (SDD) familiarizes students with the software design notations, structural descriptions, and behavioral models required for SDDs. Course notes, exercises with answers, online resources, and an instructor's manual are available upon qualified course adoption. Instructors can contact the author about these resources via the author's website: <http://softwareengineeringdesign.com/>

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