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New Technology, Big Data and the Law - Marcelo Corrales
2017-09-04

This edited collection brings

together a series of interdisciplinary contributions in the field of Information Technology Law. The topics

addressed in this book cover a wide range of theoretical and practical legal issues that have been created by cutting-edge Internet technologies, primarily Big Data, the Internet of Things, and Cloud computing.

Consideration is also given to more recent technological breakthroughs that are now used to assist, and — at times — substitute for, human work, such as automation, robots, sensors, and algorithms. The chapters presented in this edition address these issues from the perspective of different legal backgrounds. The first part of the book discusses some of the shortcomings that have prompted legislators to carry out reforms with regard to privacy, data protection, and data security. Notably, some of the complexities and salient points with regard to the new European General Data Protection Regulation (EU GDPR) and the new amendments to the Japan's Personal Information Protection Act (PIPA) have been scrutinized. The second part

looks at the vital role of Internet intermediaries (or brokers) for the proper functioning of the globalized electronic market and innovation technologies in general. The third part examines an electronic approach to evidence with an evaluation of how these technologies affect civil and criminal investigations. The authors also explore issues that have emerged in e-commerce, such as Bitcoin and its blockchain network effects. The book aims to explain, systemize and solve some of the lingering legal questions created by the disruptive technological change that characterizes the early twenty-first century.

Software Architecture Knowledge Management -

Muhammad Ali Babar
2010-05-03

A software architecture manifests the major early design decisions, which determine the system's development, deployment and evolution. Thus, making better architectural decisions is one of the large challenges in software engineering. Software

architecture knowledge management is about capturing practical experience and translating it into generalized architectural knowledge, and using this knowledge in the communication with stakeholders during all phases of the software lifecycle. This book presents a concise description of knowledge management in the software architecture discipline. It explains the importance of sound knowledge management practices for improving software architecture processes and products, and makes clear the role of knowledge management in software architecture and software development processes. It presents many approaches that are in use in software companies today, approaches that have been used in other domains, and approaches under development in academia. After an initial introduction by the editors, the contributions are grouped in three parts on "Architecture Knowledge Management", "Strategies and Approaches for

Managing Architectural Knowledge", and "Tools and Techniques for Managing Architectural Knowledge". The presentation aims at information technology and software engineering professionals, in particular software architects and software architecture researchers. For the industrial audience, the book gives a broad and concise understanding of the importance of knowledge management for improving software architecture process and building capabilities in designing and evaluating better architectures for their mission- and business-critical systems. For researchers, the book will help to understand the applications of various knowledge management approaches in an industrial setting and to identify research challenges and opportunities.

Software Product Lines -
Paul Clements 2015-12-04

Evaluating Software Architectures - Clements
2002-09

This Book Describes Systematic Methods For Evaluating Software Architectures And Applies Them To Real-Life Cases. Evaluating Software Architectures Introduces The Conceptual Background For Architecture Evaluation And Provides A Step-By-Step Guide To The Process Based On Numerous Evaluations Performed In Government And Industry.

Guide to the Software Engineering Body of Knowledge (Swebok(r)) - IEEE Computer Society 2014

In the Guide to the Software Engineering Body of Knowledge (SWEBOK(R) Guide), the IEEE Computer Society establishes a baseline for the body of knowledge for the field of software engineering, and the work supports the Society's responsibility to promote the advancement of both theory and practice in this field. It should be noted that the Guide does not purport to define the body of knowledge but rather to serve as a compendium and guide to the knowledge that has been developing and

evolving over the past four decades. Now in Version 3.0, the Guide's 15 knowledge areas summarize generally accepted topics and list references for detailed information. The editors for Version 3.0 of the SWEBOK(R) Guide are Pierre Bourque (Ecole de technologie superieure (ETS), Universite du Quebec) and Richard E. (Dick) Fairley (Software and Systems Engineering Associates (S2EA)).

Software Architect's Handbook - Joseph Ingeno
2018-08-30

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.

Software Architecture - Mary Shaw 1996

Introduction. Architectural styles. Case studies. Shared information systems.

Architectural design guidance. Formal models and specifications. Linguistics issues. Tools for architectural design. Education of software architects.

Just Enough Software Architecture

- George Fairbanks 2010-08-30

This is a practical guide for software developers, and different than other software architecture books. Here's why: It teaches risk-driven architecting. There is no need for meticulous designs when risks are small, nor any excuse for sloppy designs when risks threaten your success. This book describes a way to do just enough architecture. It avoids the one-size-fits-all process trap with advice on how to tune your design effort based on the risks you face. It democratizes architecture. This book seeks to make architecture relevant to all software developers. Developers need to understand how to use constraints as guidrails that ensure desired outcomes, and how seemingly small changes can affect a system's properties. It

cultivates declarative knowledge. There is a difference between being able to hit a ball and knowing why you are able to hit it, what psychologists refer to as procedural knowledge versus declarative knowledge. This book will make you more aware of what you have been doing and provide names for the concepts. It emphasizes the engineering. This book focuses on the technical parts of software development and what developers do to ensure the system works not job titles or processes. It shows you how to build models and analyze architectures so that you can make principled design tradeoffs. It describes the techniques software designers use to reason about medium to large sized problems and points out where you can learn specialized techniques in more detail. It provides practical advice. Software design decisions influence the architecture and vice versa. The approach in this book embraces drill-down/pop-up behavior by describing models

that have various levels of abstraction, from architecture to data structure design.

Architecture Principles -

Danny Greefhorst 2011-04-29 Enterprises, from small to large, evolve continuously. As a result, their structures are transformed and extended continuously. Without some means of control, such changes are bound to lead to an overly complex, uncoordinated and heterogeneous environment that is hard to manage and hard to adapt to future changes. Enterprise architecture principles provide a means to direct transformations of enterprises. As a consequence, architecture principles should be seen as the cornerstones of any architecture. In this book, Greefhorst and Proper focus on the role of architecture principles. They provide both a theoretical and a practical perspective on architecture principles. The theoretical perspective involves a brief survey of the general concept of principle as well as an analysis of different flavors of

principles. Architecture principles are regarded as a specific class of normative principles that direct the design of an enterprise, from the definition of its business to its supporting IT. The practical perspective on architecture principles is concerned with an approach to the formulation of architecture principles, as well as their actual use in organizations. To illustrate their use in practice, several real-life cases are discussed, an application of architecture principles in TOGAF is included, and a catalogue of example architecture principles is provided. With this broad coverage, the authors target students and researchers specializing in enterprise architecture or business information systems, as well as practitioners who want to understand the foundations underlying their practical daily work.

Object-Oriented and Classical Software

Engineering - Stephen R.

Schach 2001-11

Designed for an introductory

software engineering course. This two-part book provides an introduction to software engineering fundamentals, covering both traditional and object-oriented techniques. It presents the underlying software engineering theory in Part I and follows it up with the practical life-cycle material in Part II.

Design and Use of Software Architectures - Jan Bosch 2000
A practical guide to designing and implementing software architectures.

Documenting Software Architectures - Paul Clements
2010-10-05

Software architecture—the conceptual glue that holds every phase of a project together for its many stakeholders—is widely recognized as a critical element in modern software development. Practitioners have increasingly discovered that close attention to a software system’s architecture pays valuable dividends. Without an architecture that is appropriate for the problem being solved, a project will

stumble along or, most likely, fail. Even with a superb architecture, if that architecture is not well understood or well communicated the project is unlikely to succeed.

Documenting Software Architectures, Second Edition, provides the most complete and current guidance, independent of language or notation, on how to capture an architecture in a commonly understandable form. Drawing on their extensive experience, the authors first help you decide what information to document, and then, with guidelines and examples (in various notations, including UML), show you how to express an architecture so that others can successfully build, use, and maintain a system from it. The book features rules for sound documentation, the goals and strategies of documentation, architectural views and styles, documentation for software interfaces and software behavior, and templates for capturing and organizing information to generate a coherent package. New and

improved in this second edition: Coverage of architectural styles such as service-oriented architectures, multi-tier architectures, and data models Guidance for documentation in an Agile development environment Deeper treatment of documentation of rationale, reflecting best industrial practices Improved templates, reflecting years of use and feedback, and more documentation layout options A new, comprehensive example (available online), featuring documentation of a Web-based service-oriented system Reference guides for three important architecture documentation languages: UML, AADL, and SysML

Essential Software Architecture
- Ian Gorton 2011-04-27

Job titles like “Technical Architect” and “Chief Architect” nowadays abound in software industry, yet many people suspect that “architecture” is one of the most overused and least understood terms in professional software development. Gorton’s book tries to resolve this dilemma. It

concisely describes the essential elements of knowledge and key skills required to be a software architect. The explanations encompass the essentials of architecture thinking, practices, and supporting technologies. They range from a general understanding of structure and quality attributes through technical issues like middleware components and service-oriented architectures to recent technologies like model-driven architecture, software product lines, aspect-oriented design, and the Semantic Web, which will presumably influence future software systems. This second edition contains new material covering enterprise architecture, agile development, enterprise service bus technologies, RESTful Web services, and a case study on how to use the MeDICi integration framework. All approaches are illustrated by an ongoing real-world example. So if you work as an architect or senior designer (or want to someday), or if you are

a student in software engineering, here is a valuable and yet approachable knowledge source for you.

The Rails Way - Obie Fernandez 2007-11-16

The expert guide to building Ruby on Rails applications Ruby on Rails strips complexity from the development process, enabling professional developers to focus on what matters most: delivering business value. Now, for the first time, there's a comprehensive, authoritative guide to building production-quality software with Rails. Pioneering Rails developer Obie Fernandez and a team of experts illuminate the entire Rails API, along with the Ruby idioms, design approaches, libraries, and plug-ins that make Rails so valuable. Drawing on their unsurpassed experience, they address the real challenges development teams face, showing how to use Rails' tools and best practices to maximize productivity and build polished applications users will enjoy. Using detailed code examples, Obie

systematically covers Rails' key capabilities and subsystems. He presents advanced programming techniques, introduces open source libraries that facilitate easy Rails adoption, and offers important insights into testing and production deployment. Dive deep into the Rails codebase together, discovering why Rails behaves as it does— and how to make it behave the way you want it to. This book will help you Increase your productivity as a web developer Realize the overall joy of programming with Ruby on Rails Learn what's new in Rails 2.0 Drive design and protect long-term maintainability with TestUnit and RSpec Understand and manage complex program flow in Rails controllers Leverage Rails' support for designing REST-compliant APIs Master sophisticated Rails routing concepts and techniques Examine and troubleshoot Rails routing Make the most of ActiveRecord object-relational mapping Utilize Ajax within your Rails applications Incorporate logins and

authentication into your application
Extend Rails with the best third-party plug-ins and write your own
Integrate email services into your applications with ActionMailer
Choose the right Rails production configurations
Streamline deployment with Capistrano

Applied Software Architecture -

Christine Hofmeister 2000

"Designing a large software system is an extremely complicated undertaking that requires juggling differing perspectives and differing goals, and evaluating differing options. Applied Software Architecture is the best book yet that gives guidance as to how to sort out and organize the conflicting pressures and produce a successful design." -- Len Bass, author of Software Architecture in Practice. Quality software architecture design has always been important, but in today's fast-paced, rapidly changing, and complex development environment, it is essential. A solid, well-thought-out design helps to manage complexity, to resolve trade-

offs among conflicting requirements, and, in general, to bring quality software to market in a more timely fashion. Applied Software Architecture provides practical guidelines and techniques for producing quality software designs. It gives an overview of software architecture basics and a detailed guide to architecture design tasks, focusing on four fundamental views of architecture-- conceptual, module, execution, and code. Through four real-life case studies, this book reveals the insights and best practices of the most skilled software architects in designing software architecture. These case studies, written with the masters who created them, demonstrate how the book's concepts and techniques are embodied in state-of-the-art architecture design. You will learn how to: create designs flexible enough to incorporate tomorrow's technology; use architecture as the basis for meeting performance, modifiability, reliability, and safety requirements; determine

priorities among conflicting requirements and arrive at a successful solution; and use software architecture to help integrate system components. Anyone involved in software architecture will find this book a valuable compendium of best practices and an insightful look at the critical role of architecture in software development.

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Spillover of Adsorbed Species: International Symposium Proceedings - Gerard Meurant
2000-04-01

Spillover of Adsorbed Species: International Symposium Proceedings

Autonomic Computing and Networking - Mieso Denko
2009-06-12

Autonomic Computing and Networking presents introductory and advanced topics on autonomic computing and networking with emphasis on architectures, protocols, services, privacy & security, simulation and implementation testbeds. Autonomic computing and networking are new computing and networking

paradigms that allow the creation of self-managing and self-controlling computing and networking environment using techniques such as distributed algorithms and context-awareness to dynamically control networking functions without human interventions. Autonomic networking is characterized by recovery from failures and malfunctions, agility to changing networking environment, self-optimization and self-awareness. The self-control and management features can help to overcome the growing complexity and heterogeneity of exiting communication networks and systems. The realization of fully autonomic heterogeneous networking introduces several research challenges in all aspects of computing and networking and related fields. 97 Things Every Software Architect Should Know - Richard Monson-Haefel 2009-02-05
In this truly unique technical book, today's leading software architects present valuable principles on key development issues that go way beyond

technology. More than four dozen architects -- including Neal Ford, Michael Nygard, and Bill de hOra -- offer advice for communicating with stakeholders, eliminating complexity, empowering developers, and many more practical lessons they've learned from years of experience. Among the 97 principles in this book, you'll find useful advice such as: Don't Put Your Resume Ahead of the Requirements (Nitin Borwankar) Chances Are, Your Biggest Problem Isn't Technical (Mark Ramm) Communication Is King; Clarity and Leadership, Its Humble Servants (Mark Richards) Simplicity Before Generality, Use Before Reuse (Kevlin Henney) For the End User, the Interface Is the System (Vinayak Hegde) It's Never Too Early to Think About Performance (Rebecca Parsons) To be successful as a software architect, you need to master both business and technology. This book tells you what top software architects think is important and how they approach a project. If you want

to enhance your career, 97 Things Every Software Architect Should Know is essential reading.

Documenting Software Architectures - Felix Bachmann 2003

Architecture is crucial to the success of any large software system -- but even a superb architecture will fail if it isn't communicated well. Now, there's a language- and notation-independent guide to capturing architecture so it can be used successfully by every analyst, software designer, and developer. The authors review the diverse goals and uses of software architecture documentation, providing documentation strategies for several common scenarios. They identify the basic unit of software architecture documentation: the viewtype, which specifies the type of information to be provided in an architectural view. For each viewtype -- Modules, Component-and-Connectors, and Allocation -- they offer detailed guidance on documenting what really

matters. Next, they demonstrate how to package architecture documentation in coherent, usable form: augmenting architectural views with documentation of interfaces and behavior; accounting for architectural variability and dynamic systems; and more.

Architecture Patterns with Python - Harry Percival
2020-03-05

As Python continues to grow in popularity, projects are becoming larger and more complex. Many Python developers are now taking an interest in high-level software design patterns such as hexagonal/clean architecture, event-driven architecture, and the strategic patterns prescribed by domain-driven design (DDD). But translating those patterns into Python isn't always straightforward. With this hands-on guide, Harry Percival and Bob Gregory from MADE.com introduce proven architectural design patterns to help Python developers manage application complexity—and get the most

value out of their test suites. Each pattern is illustrated with concrete examples in beautiful, idiomatic Python, avoiding some of the verbosity of Java and C# syntax. Patterns include: Dependency inversion and its links to ports and adapters (hexagonal/clean architecture) Domain-driven design's distinction between entities, value objects, and aggregates Repository and Unit of Work patterns for persistent storage Events, commands, and the message bus Command-query responsibility segregation (CQRS) Event-driven architecture and reactive microservices

Managing Trade-offs in Adaptable Software Architectures - Ivan Mistrik
2016-08-12

Managing Trade-Offs in Adaptable Software Architectures explores the latest research on adapting large complex systems to changing requirements. To be able to adapt a system, engineers must evaluate different quality attributes, including trade-offs to balance

functional and quality requirements to maintain a well-functioning system throughout the lifetime of the system. This comprehensive resource brings together research focusing on how to manage trade-offs and architect adaptive systems in different business contexts. It presents state-of-the-art techniques, methodologies, tools, best practices, and guidelines for developing adaptive systems, 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, how to architect a system for adaptability, software architecture for self-adaptive systems, understanding and balancing the trade-offs involved, architectural patterns for self-adaptive systems, how quality attributes are exhibited

by the architecture of the system, how to connect the quality of a software architecture to system architecture or other system considerations, and more. Explains software architectural processes and metrics supporting highly adaptive and complex engineering Covers validation, verification, security, and quality assurance in system design Discusses domain-specific software engineering issues for cloud-based, mobile, context-sensitive, cyber-physical, ultra-large-scale/internet-scale systems, mash-up, and autonomic systems Includes practical case studies of complex, adaptive, and context-critical systems

Model-Based Engineering with AADL - Peter H. Feiler

2012-09-25

Conventional build-then-test practices are making today's embedded, software-reliant systems unaffordable to build. In response, more than thirty leading industrial organizations have joined SAE (formerly, the Society of Automotive

Engineers) to define the SAE Architecture Analysis & Design Language (AADL) AS-5506 Standard, a rigorous and extensible foundation for model-based engineering analysis practices that encompass software system design, integration, and assurance. Using AADL, you can conduct lightweight and rigorous analyses of critical real-time factors such as performance, dependability, security, and data integrity. You can integrate additional established and custom analysis/specification techniques into your engineering environment, developing a fully unified architecture model that makes it easier to build reliable systems that meet customer expectations. Model-Based Engineering with AADL is the first guide to using this new international standard to optimize your development processes. Coauthored by Peter H. Feiler, the standard's author and technical lead, this introductory reference and tutorial is ideal for self-directed

learning or classroom instruction, and is an excellent reference for practitioners, including architects, developers, integrators, validators, certifiers, first-level technical leaders, and project managers. Packed with real-world examples, it introduces all aspects of the AADL notation as part of an architecture-centric, model-based engineering approach to discovering embedded software systems problems earlier, when they cost less to solve. Throughout, the authors compare AADL to other modeling notations and approaches, while presenting the language via a complete case study: the development and analysis of a realistic example system through repeated refinement and analysis. Part One introduces both the AADL language and core Model-Based Engineering (MBE) practices, explaining basic software systems modeling and analysis in the context of an example system, and offering practical guidelines for effectively applying AADL.

Part Two describes the characteristics of each AADL element, including their representations, applicability, and constraints. The Appendix includes comprehensive listings of AADL language elements, properties incorporated in the AADL standard, and a description of the book's example system.

Software Architecture in Practice - Len Bass 2003

This is the eagerly-anticipated revision to one of the seminal books in the field of software architecture which clearly defines and explains the topic. Constructing Superior Software - Paul Clements 2000

This is the lead book in a series of books from the Software Quality Institute (SQI). This series will bring together some of the key individuals in the Software Engineering community, and through their knowledge and experience, develop a library of books that set the standards for best practices in achieving high-quality software. This title presents a set of fundamental engineering strategies for

achieving a successful software solution, with practical advice to ensure that the development project is moving in the right direction. Software designers and development managers can improve the development speed and quality of their software, and improve the processes used in development.

The SketchUp Workflow for Architecture - Michael Brightman 2018-06-25

A guide for leveraging SketchUp for any project size, type, or style. New construction or renovation. The revised and updated second edition of *The SketchUp Workflow for Architecture* offers guidelines for taking SketchUp to the next level in order to incorporate it into every phase of the architectural design process. The text walks through each step of the SketchUp process from the early stages of schematic design and model organization for both renovation and new construction projects to final documentation and shows how to maximize the LayOut toolset

for drafting and presentations. Written by a noted expert in the field, the text is filled with tips and techniques to access the power of SketchUp and its related suite of tools. The book presents a flexible workflow method that helps to make common design tasks easier and gives users the information needed to incorporate varying degrees of SketchUp into their design process. Filled with best practices for organizing projects and drafting schematics, this resource also includes suggestions for working with LayOut, an underused but valuable component of SketchUp Pro. In addition, tutorial videos compliment the text and clearly demonstrate more advanced methods. This important text: Presents intermediate and advanced techniques for architects who want to use SketchUp in all stages of the design process Includes in-depth explanations on using the LayOut tool set that contains example plans, details, sections, presentations, and other information Updates the first edition to reflect the

changes to SketchUp 2018 and the core functionalities, menus, tools, inferences, arc tools, reporting, and much more Written by a SketchUp authorized trainer who has an active online platform and extensive connections within the SketchUp community Contains accompanying tutorial videos that demonstrate some of the more advanced SketchUp tips and tricks Written for professional architects, as well as professionals in interior design and landscape architecture, The SketchUp Workflow for Architecture offers a revised and updated resource for using SketchUp in all aspects of the architectural design process.

Designing Software Architectures - Humberto Cervantes 2016-04-29
Designing Software Architectures will teach you how to design any software architecture in a systematic, predictable, repeatable, and cost-effective way. This book introduces a practical methodology for architecture design that any professional

software engineer can use, provides structured methods supported by reusable chunks of design knowledge, and includes rich case studies that demonstrate how to use the methods. Using realistic examples, you'll master the powerful new version of the proven Attribute-Driven Design (ADD) 3.0 method and will learn how to use it to address key drivers, including quality attributes, such as modifiability, usability, and availability, along with functional requirements and architectural concerns. Drawing on their extensive experience, Humberto Cervantes and Rick Kazman guide you through crafting practical designs that support the full software life cycle, from requirements to maintenance and evolution. You'll learn how to successfully integrate design in your organizational context, and how to design systems that will be built with agile methods. Comprehensive coverage includes Understanding what architecture design involves, and where it fits in the full software development life cycle

Mastering core design concepts, principles, and processes Understanding how to perform the steps of the ADD method Scaling design and analysis up or down, including design for pre-sale processes or lightweight architecture reviews Recognizing and optimizing critical relationships between analysis and design Utilizing proven, reusable design primitives and adapting them to specific problems and contexts Solving design problems in new domains, such as cloud, mobile, or big data

Introduction to Solution Architecture - Alan McSweeney
2019-02-20

Solution architecture is concerned with the design and definition of (information technology) solutions so they can be subsequently implemented, used, operated and supported securely and efficiently. The solution exists to operate business processes in order to achieve business objectives, meet a business need and deliver business value. Solution architecture is concerned with engaging with

the originating business function looking for the solution to create a solution vision and design a solution that meet their needs, subject to a range of constraints such as cost and affordability, time to deliver and organisational standards. The solution must exist as a coherent whole. Solutions must be designed consistently across the solution landscape and make optimum use of appropriate technologies. Solution architecture must focus on creating usable and useful solutions. Solution architecture must have a standard reliable approach to business engagements and the design of solution that emerge from them. Solution architecture must work collaboratively with other information technology functions - other architecture roles, business analysis and service management - to ensure continuity along the solution delivery journey. Effective solution architecture involves: -Have a depth and breadth of solution delivery and technical

experience to be able to identify solution design options quickly-Being able to understand the detail of the solution while maintaining a view of the wider (and higher) context of the business need for the solution and being able to explain both these views of sets of information-Being able to communicate effectively with all parties - technical and business - involved in the solution design and delivery journey, assist with decision-making, be realistic and make appropriate compromises and design choices in order to create the best solution design-Being able to apply technology appropriately and with selective innovation (and the desire to constantly acquire new knowledge and ways of applying technology)-Being involved in the solution delivery journey along its entire length-Being able to be the solution advocate and subject matter expertThis book is aimed at a variety of potential readers: - Existing solution architects who want to have a more theoretical and a broader understanding of

their role-Existing or new managers of solution architecture functions who want to create a high-performing practice within their organisations and who want to articulate the benefits and value solution architect can contribute to the information technology function and the wider business and the potential it can offer to the business organisation-Mangers of information technology functions who want to understand what solution architecture is, where it fits into the wider architecture context and disciplines and solution delivery and operation and the value it can contribute to both the information technology function and the wider business-Other information technology architects who want to understand how the architecture disciplines can work together to deliver value-Business analysts and managers of business analysis functions who want to understand how they can work more closely with the solution architecture function in order to

provide the business with a better overall service-Other information technology personnel who want to move into solution architecture and who want to understand what it is-Consulting organisations and individuals who want to develop and offer value-adding solution architecture services

Rationale Management in Software Engineering - Allen H. Dutoit 2007-02-02

This is a detailed summary of research on design rationale providing researchers in software engineering with an excellent overview of the subject. Professional software engineers will find many examples, resources and incentives to enhance their ability to make decisions during all phases of the software lifecycle. Software engineering is still primarily a human-based activity and rationale management is concerned with making design and development decisions explicit to all stakeholders involved.

Continuous Architecture in Practice - Murat Erder 2021-04
In Continuous Architecture in

Practice, three leading software architecture experts update the discipline's classic practices for today's environments, software development contexts, and applications. Coverage includes: Discover what's changed, and how the architect's role must change Reflect today's quality attributes in evolvable architectures Understand team-based software architecture, and architecture as a "flow of decisions" Architect for security, including continuous threat modeling and mitigation Explore architectural opportunities to improve performance in continuous delivery environments Architect for scalability, avoid common scalability pitfalls, and scale microservices and serverless environments Improve resilience and reliability in the face of inevitable failures Architect data for NoSQL, big data, and analytics Use architecture to promote innovation: case studies in AI/ML, chatbots, and blockchain

Software Architecture: A Case Based Approach -

Vasudeva Varma 2009-09
The book discusses the discipline of Software Architecture using real-world case studies and poses pertinent questions that arouse objective thinking. With the help of case studies and in-depth analyses, it delves into the core issues and challenges of software architecture.

[The European Journal of Applied Linguistics and TEFL Volume 10 Number 1](#) - James Dean Brown
2021-04-06

The European Journal of Applied Linguistics and TEFL is a refereed academic publication which aims to disseminate information, knowledge and expertise in the broad area of applied linguistics. Strong preference is given to contributions relating to second language acquisition, EFL pedagogy, teacher training and classroom innovation. This special issue is devoted to the theme of Assessment in the ELT Classroom and consists of ten articles presenting the latest theoretical deliberations, research and scholarship from Australia, the United Kingdom,

South Korea, the United States, the United Arab Emirates, Hong Kong, Lithuania, Norway and Cyprus, and covers important topics in the field, including, but not limited to: Psychometric and edumetric approaches to classroom assessment - Valid and reliable scoring rubrics for performance-based assessment - Classroom assessment practices in an oral skills class - Assessing writing in MENA contexts - The use of e-portfolios in assessing EFL writing - The impact of cert-mania on English language learning and teaching. This provides a valuable source of reference for applied linguists, teacher educators, materials developers and practitioners in the field of TESOL. The content also offers readers a deeper insight into current issues and practices, thereby broadening their knowledge and promoting professional development.

Software Architecture in Action - Flavio Oquendo
2016-10-26

This book presents a systematic model-based approach for software architecture according

to three complementary viewpoints: structure, behavior, and execution. It covers a unified modeling approach and consolidates theory and practice with well-established learning outcomes. The authors cover the fundamentals of software architecture description and presents SysADL, a specialization of the OMG Standard Systems Modeling Language (SysML) with the aim of bringing together the expressive power of an Architecture Description Language (ADL) with a standard notation, widely accepted by industry and compliant with the ISO/IEC/IEEE 42010 Standard on Architecture Description in Systems and Software Engineering. The book is clearly structured in four parts: The first part focuses on the fundamentals of software architecture, exploring the concepts and constructs for modeling software architecture from differing viewpoints. Each chapter covers a specific viewpoint illustrated with examples of a real system. The second part focuses on how to

design software architecture for achieving quality attributes. Each chapter covers a specific quality attribute and presents well-defined approaches to achieve it. Each architectural case study is illustrated with different examples drawn from a real-life system. The third part shows readers how to apply software architecture style to design architectures that meet the quality attributes. Each chapter covers a specific architectural style and gives insights on how to describe substyles. Each style is illustrated by variants and examples of a real-life system. The fourth part presents how to textually represent software architecture models to complement visual notation, including different examples. *Software Architecture in Action* is designed for teaching the required modeling techniques to both undergraduate and graduate students, giving them the practical techniques and tools needed to design the architecture of software-intensive systems. Similarly, this book will appeal to

software development architects, designers, programmers and project managers too.

Software Architect

Bootcamp - Raphael C. Malveau 2004

bull; Fully revised and updated to reflect the latest trends in software architecture bull;
Allows you to execute heavyweight or lightweight approaches to architecture and identify the best architectural model for any project bull;
Added coverage of UML 2.0 and Model-Driven Architecture
Architecture and Patterns for IT Service Management, Resource Planning, and Governance: Making Shoes for the Cobbler's Children - Charles T. Betz
2006-11-17

Architecture and Patterns for IT Service Management, Resource Planning, and Governance: Making Shoes for the Cobbler's Children provides an independent examination of developments in Enterprise Resource Planning for Information. Major companies, research firms, and vendors are offering Enterprise Resource

Planning for Information Technology, which they label as ERP for IT, IT Resource Planning and related terms. This book presents on-the-ground coverage of enabling IT governance in architectural detail, which can be used to define a strategy for immediate execution. It fills the gap between high-level guidance on IT governance and detailed discussions about specific vendor technologies. It provides a unique value chain approach to integrating the COBIT, ITIL, and CMM frameworks into a coherent, unified whole. It presents a field-tested, detailed conceptual information model with definitions and usage scenarios, mapped to both process and system architectures. This book is recommended for practitioners and managers engaged in IT support in large companies, particularly those who are information architects, enterprise architects, senior software engineers, program/project managers, and IT managers/directors.

Software Architecture: The Hard

Parts - Neal Ford 2021-09-23

There are no easy decisions in software architecture. Instead, there are many hard parts--difficult problems or issues with no best practices--that force you to choose among various compromises. With this book, you'll learn how to think critically about the trade-offs involved with distributed architectures. Architecture veterans and practicing consultants Neal Ford, Mark Richards, Pramod Sadalage, and Zhamak Dehghani discuss strategies for choosing an appropriate architecture. By interweaving a story about a fictional group of technology professionals--the Sysops Squad--they examine everything from how to determine service granularity, manage workflows and orchestration, manage and decouple contracts, and manage distributed transactions to how to optimize operational characteristics, such as scalability, elasticity, and performance. By focusing on commonly asked questions, this book provides techniques

to help you discover and weigh the trade-offs as you confront the issues you face as an architect. Analyze trade-offs and effectively document your decisions Make better decisions regarding service granularity Understand the complexities of breaking apart monolithic applications Manage and decouple contracts between services Handle data in a highly distributed architecture Learn patterns to manage workflow and transactions when breaking apart applications

Managing Technical Debt -

Philippe Kruchten 2019-04-15

“This is an incredibly wise and useful book. The authors have considerable real-world experience in delivering quality systems that matter, and their expertise shines through in these pages. Here you will learn what technical debt is, what is it not, how to manage it, and how to pay it down in responsible ways. This is a book I wish I had when I was just beginning my career. The authors present a myriad of case studies, born from years of experience, and offer a

multitude of actionable insights for how to apply it to your project.” –Grady Booch, IBM Fellow Master Best Practices for Managing Technical Debt to Promote Software Quality and Productivity As software systems mature, earlier design or code decisions made in the context of budget or schedule constraints increasingly impede evolution and innovation. This phenomenon is called technical debt, and practical solutions exist. In Managing Technical Debt, three leading experts introduce integrated, empirically developed principles and practices that any software professional can use to gain control of technical debt in any software system. Using real-life examples, the authors explain the forms of technical debt that afflict software-intensive systems, their root causes, and their impacts. They introduce proven approaches for identifying and assessing specific sources of technical debt, limiting new debt, and “paying off” debt over time. They describe how to establish managing technical

debt as a core software engineering practice in your organization. Discover how technical debt damages manageability, quality, productivity, and morale—and what you can do about it Clarify root causes of debt, including the linked roles of business goals, source code, architecture, testing, and infrastructure Identify technical debt items, and analyze their costs so you can prioritize action Choose the right solution for each technical debt item: eliminate, reduce, or mitigate Integrate software engineering practices that minimize new debt Managing Technical Debt will be a valuable resource for every software professional who wants to accelerate innovation in existing systems, or build new systems that will be easier to maintain and evolve.

The Art of Systems Architecting, Third Edition -

Mark W. Maier 2009-01-06

If engineering is the art and science of technical problem solving, systems architecting happens when you don't yet

know what the problem is. The third edition of a highly respected bestseller, *The Art of Systems Architecting* provides in-depth coverage of the least understood part of systems design: moving from a vague concept and limited resources to a satisfactory and feasible system concept and an executable program. The book provides a practical, heuristic approach to the "art" of systems architecting. It provides methods for embracing, and then taming, the growing complexity of modern systems. New in the Third Edition: Five major case studies illustrating successful and unsuccessful practices Information on architecture frameworks as standards for architecture descriptions New methods for integrating business strategy and architecture and the role of architecture as the technical embodiment of strategy Integration of process guidance for organizing and managing architecture projects Updates to the rapidly changing fields of software and systems-of-

systems architecture
Organization of heuristics
around a simple and practical
process model A Practical
Heuristic Approach to the Art of
Systems Architecting
Extensively rewritten to reflect
the latest developments, the
text explains how to create a
system from scratch,
presenting invention/design
rules together with clear
explanations of how to use
them. The author supplies
practical guidelines for avoiding
common systematic failures
while implementing new
mandates. He uses a heuristics-
based approach that provides
an organized attack on very ill-
structured engineering
problems. Examining
architecture as more than a set
of diagrams and documents,
but as a set of decisions that
either drive a system to
success or doom it to failure,
the book provide methods for
integrating business strategy
with technical architectural
decision making.

*Architecture Description
Languages* - Pierre Dissaux
2005-03-10

Architecture Description
Languages is an essential
reference for both academic
and professional researchers in
the field of system engineering
and design. The papers
presented in this volume were
selected from the workshop of
the same name that was held
as part of the World Computer
Congress 2004 Conference,
held in Toulouse, France in
August 2004. This collection
presents significant research
and innovative developments
and applications from both
academic researchers and
industry practitioners on topics
ranging from Semantics to Tool
and Development
Environments. The aim of an
ADL is to formally describe
software and hardware
architectures. Usually, an ADL
describes components, their
interfaces, their structures,
their interactions (structure of
data flow and control flow) and
the mappings to hardware
systems. A major goal of such
description is to allow analysis
with respect to several aspects
like timing, safety, reliability.
The papers in this state-of-the-

art volume cover such topics of interest as components, connectors, composition; semantics and formalization; verification, simulation and test; tools and development environments; standardization; industrial projects. To encourage closer interaction between academic and industrial networking research communities, the workshop welcomed academic research papers as well as industrial contributions, and both are included here. Which makes this collection important not only for ADL experts and researchers, but also for all teachers and administrators interested in ADL.

Object Design - Rebecca Wirfs-Brock 2003

Object technology pioneer Wirfs-Brock teams with expert McKean to present a thoroughly updated, modern, and proven method for the design of software. The book is packed with practical design techniques that enable the practitioner to get the job done.

Software Architecture for Big Data and the Cloud - Ivan

Mistrik 2017-06-12

Software Architecture for Big Data and the Cloud is designed to be a single resource that brings together research on how software architectures can solve the challenges imposed by building big data software systems. The challenges of big data on the software architecture can relate to scale, security, integrity, performance, concurrency, parallelism, and dependability, amongst others. Big data handling requires rethinking architectural solutions to meet functional and non-functional requirements related to volume, variety and velocity. The book's editors have varied and complementary backgrounds in requirements and architecture, specifically in software architectures for cloud and big data, as well as expertise in software engineering for cloud and big data. This book brings together work across different disciplines in software engineering, including work expanded from conference tracks and workshops led by the editors.

Discusses systematic and disciplined approaches to building software architectures for cloud and big data with state-of-the-art methods and techniques Presents case studies involving enterprise,

business, and government service deployment of big data applications Shares guidance on theory, frameworks, methodologies, and architecture for cloud and big data