

Design Of Multithreaded Software The Entity Life Modeling Approach

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Aspect-Oriented Security Hardening of UML Design Models - Djedjiga Mouheb 2015-04-22

This book comprehensively presents a novel approach to the systematic security hardening of software design models expressed in the standard UML language. It combines model-driven engineering and the aspect-oriented paradigm to integrate security practices into the early phases of the software development process. To this end, a UML profile has been developed for the specification of security hardening aspects on UML diagrams. In addition, a weaving framework, with the underlying theoretical foundations, has been designed for the systematic injection of security aspects into UML models. The work is organized as follows: chapter 1 presents an introduction to software security, model-driven engineering, UML and aspect-oriented technologies. Chapters 2 and 3 provide an overview of UML language and the main concepts of aspect-oriented modeling (AOM) respectively. Chapter 4 explores the area of model-driven architecture with a focus on model transformations. The main approaches that are adopted in the literature for security specification and hardening are presented in chapter 5. After these more general presentations, chapter 6 introduces the AOM profile for security aspects specification. Afterwards, chapter 7 details the design and the implementation of the security weaving framework, including several real-life case studies to illustrate its applicability. Chapter 8 elaborates an operational semantics for the matching/weaving processes in activity diagrams, while chapters 9 and 10 present a denotational semantics for aspect matching and weaving in executable models following a continuation-passing style. Finally, a summary and evaluation of the work presented are provided in chapter 11. The book will benefit researchers in academia and industry as well as students interested in learning about recent research advances in the field of software security engineering.

Practical Design Patterns for Java Developers - Miroslav Wengner 2023-02-03

Unravel the power of Java design patterns by learning where to apply them effectively to solve specific software design and development problems Key Features Decouple logic across objects with dependency injection by creating various vehicles with features Finalize vehicle construction by chaining handlers using the Chain of Responsibility Pattern Plan and execute an advanced vehicle sensor initiation with the Scheduler Pattern Book Description Design patterns are proven solutions to standard problems in software design and development, allowing you to create reusable, flexible, and maintainable code. This book enables you to upskill by understanding popular patterns to evolve into a proficient software developer. You'll start by exploring the Java platform to understand and implement design patterns. Then, using various examples, you'll create different types of vehicles or their parts to enable clarity in design pattern thinking, along with developing new vehicle instances using dedicated design patterns to make the process consistent. As you progress, you'll find out how to extend vehicle functionalities and keep the code base structure and behavior clean and shiny. Concurrency plays an important role in application design, and you'll learn how to employ a such design patterns with the visualization of thread interaction. The concluding chapters will help you identify and understand anti-pattern utilization in the early stages of development to address refactoring smoothly. The book covers the use of Java 17+ features such as pattern matching, switch cases, and instances of enhancements to enable productivity. By the end of this book, you'll have gained practical knowledge of design patterns in Java and be able to apply them to address common design problems. What you will learn Understand the most common problems that can be solved using Java design patterns Uncover Java building elements, their usages, and concurrency possibilities Optimize a vehicle memory footprint with the Flyweight Pattern Explore one-to-many relations between instances with

the observer pattern Discover how to route vehicle messages by using the visitor pattern Utilize and control vehicle resources with the thread-pool pattern Understand the penalties caused by anti-patterns in software design Who this book is for If you are an intermediate-level Java developer or software architect looking to learn the practical implementation of software design patterns in Java, then this book is for you. No prior knowledge of design patterns is required, but an understanding of Java programming is necessary.

C++ Concurrency in Action - Anthony Williams 2019-02-07

Summary This bestseller has been updated and revised to cover all the latest changes to C++ 14 and 17! C++ Concurrency in Action, Second Edition teaches you everything you need to write robust and elegant multithreaded applications in C++17. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology You choose C++ when your applications need to run fast. Well-designed concurrency makes them go even faster. C++ 17 delivers strong support for the multithreaded, multiprocessor programming required for fast graphic processing, machine learning, and other performance-sensitive tasks. This exceptional book unpacks the features, patterns, and best practices of production-grade C++ concurrency. About the Book C++ Concurrency in Action, Second Edition is the definitive guide to writing elegant multithreaded applications in C++. Updated for C++ 17, it carefully addresses every aspect of concurrent development, from starting new threads to designing fully functional multithreaded algorithms and data structures. Concurrency master Anthony Williams presents examples and practical tasks in every chapter, including insights that will delight even the most experienced developer. What's inside Full coverage of new C++ 17 features Starting and managing threads Synchronizing concurrent operations Designing concurrent code Debugging multithreaded applications About the Reader Written for intermediate C and C++ developers. No prior experience with concurrency required. About the Author Anthony Williams has been an active member of the BSI C++ Panel since 2001 and is the developer of the just::thread Pro extensions to the C++ 11 thread library. Table of Contents Hello, world of concurrency in C++! Managing threads Sharing data between threads Synchronizing concurrent operations The C++ memory model and operations on atomic types Designing lock-based concurrent data structures Designing lock-free concurrent data structures Designing concurrent code Advanced thread management Parallel algorithms Testing and debugging multithreaded applications

Real-Time Embedded Multithreading Using ThreadX - Edward Lamie 2019-05-07

This second edition of Real-Time Embedded Multithreading contains the fundamentals of developing real-time operating systems and multithreading with all the new functionality of ThreadX Version 5. ThreadX has been deployed in approximately 500 million devices worldwide. General concepts and terminology are detailed along with problem solving of com

The Adventurous and Practical Journey to a Large-Scale

Enterprise Solution - FANAP Studies & Research Center 2023-03-16

The high failure rate of enterprise resource planning (ERP) projects is a pressing concern for both academic researchers and industrial practitioners. The challenges of an ERP implementation are particularly high when the project involves designing and developing a system from scratch. Organizations often turn to vendors and consultants for handling such projects but, every aspect of an ERP project is opaque for both customers and vendors. Unlocking the mysteries of building a large-scale ERP system, The Adventurous and Practical Journey to a Large-Scale Enterprise Solution tells the story of implementing an applied enterprise solution. The book covers the field of enterprise resource planning by examining state-of-the-art concepts in software project management

methodology, design and development integration policy, and deployment framework, including: A hybrid project management methodology using waterfall as well as a customized Scrum-based approach A novel multi-tiered software architecture featuring an enhanced flowable process engine A unique platform for coding business processes efficiently Integration to embed ERP modules in physical devices A heuristic-based framework to successfully step into the Go-live period Written to help ERP project professionals, the book charts the path that they should travel from project ideation to systems implementation. It presents a detailed, real-life case study of implementing a large-scale ERP and uses storytelling to demonstrate incorrect and correct decisions frequently made by vendors and customers. Filled with practical lessons learned, the book explains the ins and outs of adopting project methodologies. It weaves a tale that features both real-world and scholarly aspects of an ERP implementation.

Trustworthy Cyber-Physical Systems Engineering - Alexander Romanovsky 2016-10-03

From the Foreword "Getting CPS dependability right is essential to forming a solid foundation for a world that increasingly depends on such systems. This book represents the cutting edge of what we know about rigorous ways to ensure that our CPS designs are trustworthy. I recommend it to anyone who wants to get a deep look at these concepts that will form a cornerstone for future CPS designs." --Phil Koopman, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA Trustworthy Cyber-Physical Systems Engineering provides practitioners and researchers with a comprehensive introduction to the area of trustworthy Cyber Physical Systems (CPS) engineering. Topics in this book cover questions such as What does having a trustworthy CPS actually mean for something as pervasive as a global-scale CPS? How does CPS trustworthiness map onto existing knowledge, and where do we need to know more? How can we mathematically prove timeliness, correctness, and other essential properties for systems that may be adaptive and even self-healing? How can we better represent the physical reality underlying real-world numeric quantities in the computing system? How can we establish, reason about, and ensure trust between CPS components that are designed, installed, maintained, and operated by different organizations, and which may never have really been intended to work together? ? Featuring contributions from leading international experts, the book contains sixteen self-contained chapters that analyze the challenges in developing trustworthy CPS, and identify important issues in developing engineering methods for CPS. The book addresses various issues contributing to trustworthiness complemented by contributions on TCSP roadmapping, taxonomy, and standardization, as well as experience in deploying advanced system engineering methods in industry. Specific approaches to ensuring trustworthiness, namely, proof and refinement, are covered, as well as engineering methods for dealing with hybrid aspects.

EDN - 1998

The Design and Implementation of the RT-Thread Operating System - Qiu Yi 2020-11-13

Since the release of V0.01 in 2006, to the present V4.0 version, RT-Thread has developed a reputation among developers for its open source strategy. RT-Thread has gained a large following among members of the embedded open source community in China with hundreds of thousands of enthusiasts. RT-Thread is widely used in energy, automotive, medical, consumer electronics, among other applications, making it a mature and stable open source embedded operating system. The purpose of RT-Thread RTOS Design and Implementation is to create an easy learning curve for mastering RT-Thread, so that more developers can participate in the development of RT-Thread and work together to create an open source, tiny, and beautiful Internet of Things operating system. The book's first part introduces the RT-Thread kernel and starts with an overview of RT-Thread before covering thread management, clock management, inter-thread synchronization, inter-thread communication, memory management, and interrupt management. The second part begins with RT-Thread kernel porting and explains how to port RT-Thread to a hardware board to run it. The second part also introduces RT-Thread components and discusses the Env development environment, FinSH console, device management, and network framework. Additional topics covered include: The I/O device framework Virtual file systems Peripheral interfaces Devices including the PIN device, UART device, and ADC device, among others. Each chapter features code samples, as well as helpful tables and graphs, so you can practice as you learn as well as perform your own experiments.

Component-Based Software Engineering - Heinz G. Schmidt 2007-08-14 Providing all the latest on a topic of extreme commercial relevance, this book contains the refereed proceedings of the 10th International ACM SIGSOFT Symposium on Component-Based Software Engineering, held in Medford, MA, USA in July 2007. The 19 revised full papers presented were carefully reviewed and selected from 89 submissions. The papers feature new trends in global software services and distributed systems architectures to push the limits of established and tested component-based methods, tools and platforms.

Network World - 2003-06-23

For more than 20 years, Network World has been the premier provider of information, intelligence and insight for network and IT executives responsible for the digital nervous systems of large organizations. Readers are responsible for designing, implementing and managing the voice, data and video systems their companies use to support everything from business critical applications to employee collaboration and electronic commerce.

Real-Time Software Design for Embedded Systems - Hassan Gomaa 2016-05-26

Organized as an introduction followed by several self-contained chapters, this tutorial takes the reader from use cases to complete architectures for real-time embedded systems using SysML, UML, and MARTE and shows how to apply the COMET/RTE design method to real-world problems. --

Integrating Cognitive Architectures into Virtual Character Design - Turner, Jeremy Owen 2016-06-06

Cognitive architectures represent an umbrella term to describe ways in which the flow of thought can be engineered towards cerebral and behavioral outcomes. Cognitive Architectures are meant to provide top-down guidance, a knowledge base, interactive heuristics and concrete or fuzzy policies for which the virtual character can utilize for intelligent interaction with his/her/its situated virtual environment. Integrating Cognitive Architectures into Virtual Character Design presents emerging research on virtual character artificial intelligence systems and procedures and the integration of cognitive architectures. Emphasizing innovative methodologies for intelligent virtual character integration and design, this publication is an ideal reference source for graduate-level students, researchers, and professionals in the fields of artificial intelligence, gaming, and computer science.

Design Patterns in the Real World, an Analysis-based Approach - Allen I. Holub 2015

"Alan Holub takes coders deep into the reality of Gang-of-Four design patterns, those reusable guides to common object-oriented design problems. He deconstructs two significant software programs (Mel Conway's 'Game of Life' and a SQL interpreter) to demonstrate how design patterns work and interact in complex ways, share classes with other patterns, and have pros and cons. Each of the three primary design pattern categories, creational, structural, and behavioral are discussed and illustrated. Discover what design patterns are and when they are used in the Agile environment; Exercise better control over object creation using the Factory, Builder, Singleton, Abstract, and Prototype design patterns; Identify easier ways to realize relationships between entities using the Adapter, Decorator, Bridge, Facade, Composite, Flyweight, and Proxy design patterns; Recognize common communication patterns between objects using the Template Method, Command, Chain of Responsibility, Iterator, Observer, Visitor, Mediator, Memento, Strategy, and State design patterns; Examine the Active Object design pattern, an architectural solution to problems inherent in multi-threading; Understand how the strengths and weaknesses of design patterns play off one another; Learn how a given pattern can be implemented in various ways."--Resource description page.

Handbook of Research on Software Engineering and Productivity Technologies: Implications of Globalization - Ramachandran, Muthu 2009-08-31

"This book provides integrated chapters on software engineering and enterprise systems focusing on parts integrating requirements engineering, software engineering, process and frameworks, productivity technologies, and enterprise systems"--Provided by publisher.

Computer Systems and Software Engineering: Concepts, Methodologies, Tools, and Applications - Management Association, Information Resources 2017-12-01

Professionals in the interdisciplinary field of computer science focus on the design, operation, and maintenance of computational systems and software. Methodologies and tools of engineering are utilized alongside computer applications to develop efficient and precise information databases. Computer Systems and Software Engineering: Concepts,

Methodologies, Tools, and Applications is a comprehensive reference source for the latest scholarly material on trends, techniques, and uses of various technology applications and examines the benefits and challenges of these computational developments. Highlighting a range of pertinent topics such as utility computing, computer security, and information systems applications, this multi-volume book is ideally designed for academicians, researchers, students, web designers, software developers, and practitioners interested in computer systems and software engineering.

Software Engineering - James F. Peters 2000

A clear-cut, practical approach to software development! Emphasizing both the design and analysis of the technology, Peters and Pedrycz have written a comprehensive and complete text on a quantitative approach to software engineering. As you read the text, you'll learn the software design practices that are standard practice in the industry today. Practical approaches to specifying, designing and testing software as well as the foundations of Software Engineering are also presented. And the latest information in the field, additional experiments, and solutions to selected problems are available at the authors's web site

(<http://www.ee.umanitoba.ca/~clib/main.html>). Key Features * Thorough coverage is provided on the quantitative aspects of software Engineering including software measures, software quality, software costs and software reliability. * A complete case study allows students to trace the application of methods and practices in each chapter. * Examples found throughout the text are in C++ and Java. * A wide range of elementary and intermediate problems as well as more advanced research problems are available at the end of each chapter. * Students are given the opportunity to expand their horizons through frequent references to related web pages.

School of Music Programs - University of Michigan. School of Music 1998

Index to IEEE Publications - Institute of Electrical and Electronics Engineers 1997

Issues for 1973- cover the entire IEEE technical literature.

Analysis within the Systems Development Life-Cycle - Rosemary Rock-Evans 2014-05-17

Analysis within the Systems Development Life-Cycle, Book 3: Activity Analysis — The Deliverables provides a comprehensive coverage of the deliverables of activity analysis. The book also details purpose of each deliverable in the context of the next tasks in the systems development cycle (SDC). The text first covers the concept of deliverables and the benefits of making deliverables visible. In the second chapter, the book introduces the main concepts and diagrammatic techniques of activity analysis. The third chapter deals with the important classes or categories of concept, while the fourth chapter talks about the deliverables of activity analysis. The book will be of great use to individuals involved in the design and management of complex development projects, such as systems engineers.

Hands-On Software Architecture with Java - Giuseppe Bonocore 2022-03-16

Build robust and scalable Java applications by learning how to implement every aspect of software architecture Key Features Understand the fundamentals of software architecture and build production-grade applications in Java Make smart architectural decisions with comprehensive coverage of various architectural approaches from SOA to microservices Gain an in-depth understanding of deployment considerations with cloud and CI/CD pipelines Book Description Well-written software architecture is the core of an efficient and scalable enterprise application. Java, the most widespread technology in current enterprises, provides complete toolkits to support the implementation of a well-designed architecture. This book starts with the fundamentals of architecture and takes you through the basic components of application architecture. You'll cover the different types of software architectural patterns and application integration patterns and learn about their most widespread implementation in Java. You'll then explore cloud-native architectures and best practices for enhancing existing applications to better suit a cloud-enabled world. Later, the book highlights some cross-cutting concerns and the importance of monitoring and tracing for planning the evolution of the software, foreseeing predictable maintenance, and troubleshooting. The book concludes with an analysis of the current status of software architectures in Java programming and offers insights into transforming your architecture to reduce technical debt. By the end of this software architecture book, you'll have acquired some of the most valuable and in-demand software architect skills to progress in your career. What you will learn Understand the importance of

requirements engineering, including functional versus non-functional requirements Explore design techniques such as domain-driven design, test-driven development (TDD), and behavior-driven development Discover the mantras of selecting the right architectural patterns for modern applications Explore different integration patterns Enhance existing applications with essential cloud-native patterns and recommended practices Address cross-cutting considerations in enterprise applications regardless of architectural choices and application type Who this book is for This book is for Java software engineers who want to become software architects and learn everything a modern software architect needs to know. The book is also for software architects, technical leaders, vice presidents of software engineering, and CTOs looking to extend their knowledge and stay up to date with the latest developments in the field of software architecture.

Computerworld - 2003-06-23

For more than 40 years, Computerworld has been the leading source of technology news and information for IT influencers worldwide.

Computerworld's award-winning Web site (Computerworld.com), twice-monthly publication, focused conference series and custom research form the hub of the world's largest global IT media network.

The X Resource - 1991

Enabling Technologies and Design of Nonlethal Weapons - Glenn T. Shwaery 2006

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

Data Integration in the Life Sciences - Ulf Leser 2006-07-14

This book constitutes the refereed proceedings of the Third International Workshop on Data Integration in the Life Sciences, DILS 2006, held in Hinxton, UK in July 2006. Presents 19 revised full papers and 4 revised short papers together with 2 keynote talks, addressing current issues in data integration from the life science point of view. The papers are organized in topical sections on data integration, text mining, systems, and workflow.

C# for Financial Markets - Daniel J. Duffy 2013-01-14

A practice-oriented guide to using C# to design and program pricing and trading models In this step-by-step guide to software development for financial analysts, traders, developers and quants, the authors show both novice and experienced practitioners how to develop robust and accurate pricing models and employ them in real environments. Traders will learn how to design and implement applications for curve and surface modeling, fixed income products, hedging strategies, plain and exotic option modeling, interest rate options, structured bonds, unfunded structured products, and more. A unique mix of modern software technology and quantitative finance, this book is both timely and practical. The approach is thorough and comprehensive and the authors use a combination of C# language features, design patterns, mathematics and finance to produce efficient and maintainable software. Designed for quant developers, traders and MSc/MFE students, each chapter has numerous exercises and the book is accompanied by a dedicated companion website,

<http://www.datasimfinancial.com/forum/viewforum.php?f=196&sid=f30022095850dee48c7db5ff62192b34>, providing all source code, alongside audio, support and discussion forums for readers to comment on the code and obtain new versions of the software.

Modeling and Simulation Support for System of Systems Engineering Applications - Larry B. Rainey 2015-01-05

"...a much-needed handbook with contributions from well-chosen practitioners. A primary accomplishment is to provide guidance for those involved in modeling and simulation in support of Systems of Systems development, more particularly guidance that draws on well-conceived academic research to define concepts and terms, that identifies primary challenges for developers, and that suggests fruitful approaches grounded in theory and successful examples." Paul Davis, The RAND Corporation Modeling and Simulation Support for System of Systems Engineering Applications provides a comprehensive overview of the underlying theory, methods, and solutions in modeling and simulation support for system of systems engineering. Highlighting plentiful multidisciplinary applications of modeling and simulation, the book uniquely addresses the criteria and challenges found within the field. Beginning with a foundation of concepts, terms, and categories, a theoretical and generalized approach to system

of systems engineering is introduced, and real-world applications via case studies and examples are presented. A unified approach is maintained in an effort to understand the complexity of a single system as well as the context among other proximate systems. In addition, the book features: Cutting edge coverage of modeling and simulation within the field of system of systems, including transportation, system health management, space mission analysis, systems engineering methodology, and energy State-of-the-art advances within multiple domains to instantiate theoretic insights, applicable methods, and lessons learned from real-world applications of modeling and simulation The challenges of system of systems engineering using a systematic and holistic approach Key concepts, terms, and activities to provide a comprehensive, unified, and concise representation of the field A collection of chapters written by over 40 recognized international experts from academia, government, and industry A research agenda derived from the contribution of experts that guides scholars and researchers towards open questions Modeling and Simulation Support for System of Systems Engineering Applications is an ideal reference and resource for academics and practitioners in operations research, engineering, statistics, mathematics, modeling and simulation, and computer science. The book is also an excellent course book for graduate and PhD-level courses in modeling and simulation, engineering, and computer science.

Artificial Life - 1998

Consists of the proceedings of: 1987, Interdisciplinary Workshop on the Synthesis and Simulation of Living Systems; 1990-1992, Artificial Life Workshop; 1994-1996, International Workshop on the Synthesis and Simulation of Living Systems; 1998- , International Conference on Artificial Life.

Java 2 Enterprise Edition 1.4 (J2EE 1.4) Bible - James McGovern 2011-09-23

Java 2 Enterprise Edition (J2EE) is the specification that all enterprise Java developers need to build multi-tier applications, and also the basis for BEA's WebLogic Application Server and IBM's WebSphere Revised to be current with the significant J2EE 1.4 update that will drive substantial developer interest Written by a top-selling team of eleven experts who provide unique and substantial business examples in a vendor-neutral format, making the information applicable to various application servers Covers patterns, J2EE application servers, frameworks, Ant, and continuous availability Includes extensive intermediate and advanced coverage of J2EE APIs Companion Web site provides additional examples and information

Professional Automated Trading - Eugene A. Durenard 2013-10-21

An insider's view of how to develop and operate an automated proprietary trading network Reflecting author Eugene Durenard's extensive experience in this field, Professional Automated Trading offers valuable insights you won't find anywhere else. It reveals how a series of concepts and techniques coming from current research in artificial life and modern control theory can be applied to the design of effective trading systems that outperform the majority of published trading systems. It also skillfully provides you with essential information on the practical coding and implementation of a scalable systematic trading architecture. Based on years of practical experience in building successful research and infrastructure processes for purpose of trading at several frequencies, this book is designed to be a comprehensive guide for understanding the theory of design and the practice of implementation of an automated systematic trading process at an institutional scale. Discusses several classical strategies and covers the design of efficient simulation engines for back and forward testing Provides insights on effectively implementing a series of distributed processes that should form the core of a robust and fault-tolerant automated systematic trading architecture Addresses trade execution optimization by studying market-pressure models and minimization of costs via applications of execution algorithms Introduces a series of novel concepts from artificial life and modern control theory that enhance robustness of the systematic decision making—focusing on various aspects of adaptation and dynamic optimal model choice Engaging and informative, Proprietary Automated Trading covers the most important aspects of this endeavor and will put you in a better position to excel at it.

Distributed Computing, Artificial Intelligence, Bioinformatics, Soft Computing, and Ambient Assisted Living - Sigeru Omatu 2009-06-06

This volume (II) contains all publications accepted for the symposiums and workshops held in parallel with the 10th International Work-Conference on Artificial Neural Networks (IWANN 2009), covering a wide spectrum of technological areas such as distributed computing, artificial intelligence, bioinformatics, soft computing and ambient-assisted living: • DCAI 2009

(International Symposium on Distributed Computing and Artificial Intelligence), covering artificial intelligence and its applications in distributed environments, such as the Internet, electronic commerce, mobile communi- tions, wireless devices, distributed computing, and so on. This event accepted a total of 96 submissions selected from a submission pool of 157 papers, from 12 different countries. • IWAAL 2009 (International Workshop of Ambient-Assisted Living), covering solutions aimed at increasing the quality of life, safety and health problems of elderly and disabled people by means of technology. This event accepted a - tal of 42 submissions selected from a submission pool of 78 papers, from 9 d- ferent countries. • IWPACBB 2009 (Third International Workshop on Practical Applications of Computational Biology and Bioinformatics), covering computational biology and bioinformatics as a possibility for knowledge discovery, modelling and - timization tasks, aiming at the development of computational models so that the response of biological complex systems to any perturbation can be p- dicted. This event accepted a total of 39 submissions selected from a subm- sion pool of 75 papers, from 6 different countries.

Artificial General Intelligence - Ben Goertzel 2007-01-17

"Only a small community has concentrated on general intelligence. No one has tried to make a thinking machine . . . The bottom line is that we really haven't progressed too far toward a truly intelligent machine. We have collections of dumb specialists in small domains; the true majesty of general intelligence still awaits our attack. . . . We have got to get back to the deepest questions of AI and general intelligence. . . ." -Marvin Minsky as interviewed in Hal's Legacy, edited by David Stork, 2000. Our goal in creating this edited volume has been to ?ll an apparent gap in the scienti?c literature, by providing a coherent presentation of a body of contemporary research that, in spite of its integral importance, has hitherto kept a very low pro?le within the scienti?c and intellectual community. This body of work has not been given a name before; in this book we christen it "Arti?cial General Intelligence" (AGI). What distinguishes AGI work from run-of-the-mill "arti?cial intelligence" research is that it is explicitly focused on engineering general intelligence in the short term. We have been active researchers in the AGI ?eld for many years, and it has been a pleasure to gather together papers from our colleagues working on related ideas from their own perspectives. In the Introduction we give a conceptual overview of the AGI ?eld, and also summarize and interrelate the key ideas of the papers in the subsequent chapters.

Design of Multithreaded Software - Bo I. Sanden 2011-04-06

This book assumes familiarity with threads (in a language such as Ada, C#, or Java) and introduces the entity-life modeling (ELM) design approach for certain kinds of multithreaded software. ELM focuses on "reactive systems," which continuously interact with the problem environment. These "reactive systems" include embedded systems, as well as such interactive systems as cruise controllers and automated teller machines. Part I covers two fundamentals: program-language thread support and state diagramming. These are necessary for understanding ELM and are provided primarily for reference. Part II covers ELM from different angles. Part III positions ELM relative to other design approaches.

Domain-driven Design - Eric Evans 2004

"Domain-Driven Design" incorporates numerous examples in Java-case studies taken from actual projects that illustrate the application of domain-driven design to real-world software development.

Computer Algebra in Scientific Computing - Vladimir P. Gerdt 2018-09-03

This book constitutes the proceedings of the 20th International Workshop on Computer Algebra in Scientific Computing, CASC 2018, held in Lille, France, in September 2018. The 24 full papers of this volume presented with an abstract of an invited talk and one paper corresponding to another invited talk were carefully reviewed and selected from 29 submissions. They deal with cutting-edge research in all major disciplines of computer algebra in sciences such as physics, chemistry, life sciences, and engineering. Chapter "Positive Solutions of Systems of Signed Parametric Polynomial Inequalities" is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.

Multithreaded Computer Architecture: A Summary of the State of the ART - Robert A. Iannucci 2012-12-06

Multithreaded computer architecture has emerged as one of the most promising and exciting avenues for the exploitation of parallelism. This new field represents the confluence of several independent research directions which have united over a common set of issues and techniques.

Multithreading draws on recent advances in dataflow, RISC, compiling for fine-grained parallel execution, and dynamic resource management. It offers the hope of dramatic performance increases through parallel execution for a broad spectrum of significant applications based on extensions to 'traditional' approaches. Multithreaded Computer Architecture is divided into four parts, reflecting four major perspectives on the topic. Part I provides the reader with basic background information, definitions, and surveys of work which have in one way or another been pivotal in defining and shaping multithreading as an architectural discipline. Part II examines key elements of multithreading, highlighting the fundamental nature of latency and synchronization. This section presents clever techniques for hiding latency and supporting large synchronization name spaces. Part III looks at three major multithreaded systems, considering issues of machine organization and compilation strategy. Part IV concludes the volume with an analysis of multithreaded architectures, showcasing methodologies and actual measurements. Multithreaded Computer Architecture: A Summary of the State of the Art is an excellent reference source and may be used as a text for advanced courses on the subject.

Artificial Life VI - Christoph Adami 1998

Since their inception in 1987, the Artificial Life meetings have grown from small workshops to truly international conferences, reflecting the fields increasing appeal to researchers in all areas of science.

Win32 Multithreaded Programming - Aaron Cohen 1998

Disc includes the Mcl and Mcl4Mfc class libraries and help files, along with all sample programs from the book.

Event-Based Programming - Ted Faison 2006-12-06

This book shows how to develop software based on parts that interact primarily through an event mechanism. The book demonstrates the use of events in all sorts of situations to solve recurring development problems without incurring coupling. A novel form of software diagram is introduced, called Signal Wiring Diagram. These diagrams are similar to the circuit diagrams used by hardware designers. A series of case studies concludes the book, bringing all the next concepts introduced together.

Source code is provided in both C# and VB.NET

AsiaSim 2012 - Part III - Tianyuan Xiao 2012-10-06

The Three-Volume-Set CCIS 323, 324, 325 (AsiaSim 2012) together with the Two-Volume-Set CCIS 326, 327 (ICSC 2012) constitutes the refereed proceedings of the Asia Simulation Conference, AsiaSim 2012, and the International Conference on System Simulation, ICSC 2012, held in Shanghai, China, in October 2012. The 267 revised full papers presented were carefully reviewed and selected from 906 submissions. The papers are organized in topical sections on modeling theory and technology;

modeling and simulation technology on synthesized environment and virtual reality environment; pervasive computing and simulation technology; embedded computing and simulation technology; verification, validation and accreditation technology; networked modeling and simulation technology; modeling and simulation technology of continuous system, discrete system, hybrid system, and intelligent system; high performance computing and simulation technology; cloud simulation technology; modeling and simulation technology of complex system and open, complex, huge system; simulation based acquisition and virtual prototyping engineering technology; simulator; simulation language and intelligent simulation system; parallel and distributed software; CAD, CAE, CAM, CIMS, VP, VM, and VR; visualization; computing and simulation applications in science and engineering; computing and simulation applications in management, society and economics; computing and simulation applications in life and biomedical engineering; computing and simulation applications in energy and environment; computing and simulation applications in education; computing and simulation applications in military field; computing and simulation applications in medical field.

Computational Logic — CL 2000 - John Lloyd 2000-07-17

These are the proceedings of the First International Conference on Computational Logic (CL 2000) which was held at Imperial College in London from 24th to 28th July, 2000. The theme of the conference covered all aspects of the theory, implementation, and application of computational logic, where computational logic is to be understood broadly as the use of logic in computer science. The conference was collocated with the following events: { 6th International Conference on Rules and Objects in Databases (DOOD 2000) { 10th International Workshop on Logic-based Program Synthesis and Transformation (LOPSTR 2000) { 10th International Conference on Inductive Logic Programming (ILP 2000). CL 2000 consisted of seven streams: { Program Development (LOPSTR 2000) { Logic Programming: Theory and Extensions { Constraints { Automated Deduction: Putting Theory into Practice { Knowledge Representation and Non-monotonic Reasoning { Database Systems (DOOD 2000) { Logic Programming: Implementations and Applications. The LOPSTR 2000 workshop constituted the program development stream and the DOOD 2000 conference constituted the database systems stream. Each stream had its own chair and program committee, which autonomously selected the papers in the area of the stream. Overall, 176 papers were submitted, of which 86 were selected to be presented at the conference and appear in these proceedings. The acceptance rate was uniform across the streams. In addition, LOPSTR 2000 accepted about 15 extended abstracts to be presented at the conference in the program development stream.