How To Design Programs An Introduction To Programming

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Designing International Partnership Programs - Andrea E. Stumpf 2019
"In partnering across the international community - from the United Nations and other multilateral and international organizations to governments, civil society, academia, nonprofits, for-profits, and more - together we can expand our resolve and our reach to make a greater difference."--Foreword.
Career Ready Education Through Experiential Learning - Northrup, Pamela 2021-03-19
Despite the promise of competency-based education (CBE), learner-centered issues related to support, retention, and program completion rates remain problematic. In addition, the infrastructure for higher education, including issues related to faculty (intellectual property, workload, and curriculum), pose barriers and challenges in the design, development, implementation, and delivery of CBE. In response, administrators, faculty, designers, and developers of competency-based experiences must incorporate innovative strategies that are foreign to the traditional institution. A strong emphasis on retention and graduation rates must surround the student with support, starting with the design and development of the CBE system. There are few resources that can help prepare instructional designers, advisors, academic administrators, and faculty to meet the many challenges of designing, developing, implementing, and managing CBE. Career Ready Education Through Experiential Learning is an essential reference book that includes strategies for design and development of competency-based education (CBE) programs, as well as administrative and delivery strategies as examples of how CBE can be implemented. Through a strong theoretical framework, chapters present the best practices, strategies, and practical tips as examples and scenarios that can be used in higher education settings. While highlighting education courses, programs, and lessons across various institutions and educational domains, this book is ideal for higher education administrators and policy designers/implementors, instructional designers, curriculum developers, faculty, public policy leaders, students in curriculum and instruction and instructional technology programs, along with researchers and practitioners interested in CBE and experiential learning in higher education.
Mismatch - Kat Holmes 2020-09-01
How inclusive methods can build elegant design solutions that work for all. Sometimes designed objects reject their users: a computer mouse that doesn't work for left-handed people, for example, or a touchscreen payment system that only works for people who read English phrases, have 20/20 vision, and use a credit card. Something as simple as color choices can render a product unusable for millions. These mismatches are the building blocks of exclusion. In Mismatch, Kat Holmes describes how design can lead to exclusion, and how design can also remedy exclusion. Inclusive design methods—designing objects with rather than for excluded users—can create elegant solutions that work well and benefit all. Holmes tells stories of pioneers of inclusive design, many of whom were drawn to work on inclusion because of their own experiences of exclusion. A gamer and designer who depends on voice recognition shows Holmes his “Wall of Exclusion,” which displays dozens of game controllers that require two hands to operate; an architect shares her firsthand knowledge of how design can fail communities, gleaned from growing up in Detroit's housing projects; an astronomer who began to lose her eyesight adapts a technique called “sonification” so she can “listen” to the stars. Designing for inclusion is not a feel-good sideline. Holmes shows how inclusion can be a source of innovation and growth, especially for digital technologies. It can be a catalyst for creativity and a boost for the bottom line as a customer base expands. And each time we remedy a mismatched interaction, we create an opportunity for more people to contribute to society in meaningful ways.
How to Design Programs - Matthias Felleisen 2001
Processing simple forms of data - Processing arbitrarily large data - More on processing arbitrarily large data - Abstracting designs - Generative recursion - Changing the state of variables - Changing compound values.
Picturing Programs - Stephen Bloch 2010
A first programming course should not be directed towards learning a particular programming language, but rather at learning to program well; the programming language should get out of the way and serve this goal. The simple, powerful Racket language (related to Scheme) allows us to concentrate on the fundamental concepts and techniques of computer programming, without being distracted by complex syntax. As a result, this book can be used at the high school (and perhaps middle school) level, while providing enough advanced concepts not usually found in a first course to challenge a college student. Those who have already done some programming (e.g. in Java, Python, or C++) will enhance their understanding of the fundamentals, un-learn some bad habits, and change the way they think about programming. We take a graphics-early approach: you'll start manipulating and combining graphic images from Chapter 1 and writing event-driven GUI programs from Chapter 6, even before seeing arithmetic. We continue using graphics, GUI and game programming throughout to motivate fundamental concepts. At the same time, we emphasize data types, testing, and a concrete, step-by-step process of problem-solving. After working through this book, you'll be prepared to learn other programming languages and program well in them. Or, if this is the last programming course you ever take, you'll understand many of the issues that affect the programs you use every day. I have been using Picturing Programs with my daughter, and there's no doubt that it's gentler than Htdp. It does exactly what Stephen claims, which is to move gradually from copy-and-change exercises to think-on-your-own exercises within each section. I also think it's nice that the "worked exercises" are clearly labeled as such. There's something psychologically appealing about the fact that you first see an example in the text of the book, and then a similar example is presented as if it were an exercise but they just happen to be giving away the answer. It is practically shouting out "Here's a model of how you go about solving this class of problems, pay close attention ."" Mark Engelberg "1. Matthias & team have done exceptional, highly impressive work with HtDP. The concepts are close to genius. (perhaps yes, genius quality work) They are a MUST for any high school offering serious introductory CS curriculum. 2. Without Dr. Blochs book "Picturing Programs," I would not have successfully implemented these concepts (Dr. Scheme, Racket, Design Recipe etc) into an ordinary High School Classroom. Any high school instructor who struggles to find ways to bring these great HtDP ideas to the typical high schooler, should immediately investigate the Bloch book. Think of it as coating the castor oil with chocolate." Brett Penza
How To Design Programs: An Introduction To Programming And Computing - Matthias Felleisen 2004

Design For How People Learn - Julie Dirksen 2011-11-07
Products, technologies, and workplaces change so quickly today that everyone is continually learning. Many of us are also teaching, even when it's not in our job descriptions. Whether it's giving a presentation, writing documentation, or creating a website or blog, we need and want to share our knowledge with other people. But if you've ever fallen asleep over a boring textbook, or fast-forwarded through a tedious e-

learning exercise, you know that creating a great learning experience is harder than it seems. In Design For How People Learn, you'll discover how to use the key principles behind learning, memory, and attention to create materials that enable your audience to both gain and retain the knowledge and skills you're sharing. Using accessible visual metaphors and concrete methods and examples, Design For How People Learn will teach you how to leverage the fundamental concepts of instructional design both to improve your own learning and to engage your audience.

How to Write Parallel Programs - Nicholas Carriero 1990

Mathematics of Computing -- Parallelism.

Elements of Programming - Alexander Stepanov 2019-06-27

Elements of Programming provides a different understanding of programming than is presented elsewhere. Its major premise is that practical programming, like other areas of science and engineering, must be based on a solid mathematical foundation. The book shows that algorithms implemented in a real programming language, such as C++, can operate in the most general mathematical setting. For example, the fast exponentiation algorithm is defined to work with any associative operation. Using abstract algorithms leads to efficient, reliable, secure, and economical software.

Designing and Developing Training Programs - Janis Fisher Chan 2009-12-30

Designing and Developing Training Programs is filled with practical information, best practices, and proven strategies. This book will help both new and experienced trainers design and develop training programs that achieve results for both individuals and their organizations while meeting the challenges of today's fast-paced, rapidly changing learning environment. Created to be easy-to-use, Designing and Developing Training Programs covers a wide range of topics, including how to: Ensure that training is needed, relevant, and cost-effective Analyze the needs and characteristics of the audience Write behavioral learning Select the right content and design activities that help people learn Develop effective learning materials Create a program evaluation Design virtual and remote training programs Praise for Designing and Developing Training Programs "Janis Fisher Chan is truly a master designer, having an uncanny ability to help people to truly think. Her book is of real service to anyone in the field of training." —Manfred Kets de Vries, Raoul de Vitry d'Avaucourt Chaired Clinical Professor of Leadership Development and director, INSEAD Global Leadership Centre "What makes Janis Chan's book so exceptional is the variety of challenging, content-related exercises that bring the concepts 'up close and personal' into the reader's life and work." —Sharon Bowman, Author, Training from the BACK of the Room!

How to Design Programs an Introduction to Programming and Computing - 2015

Realm of Racket - Matthias Felleisen 2013-06-13

Racket is a descendant of Lisp, a programming language renowned for its elegance, power, and challenging learning curve. But while Racket retains the functional goodness of Lisp, it was designed with beginning programmers in mind. Realm of Racket is your introduction to the Racket language. In Realm of Racket, you'll learn to program by creating increasingly complex games. Your journey begins with the Guess My Number game and coverage of some basic Racket etiquette. Next you'll dig into syntax and semantics, lists, structures, and conditionals, and learn to work with recursion and the GUI as you build the Robot Snake game. After that it's on to lambda and mutant structs (and an Orc Battle), and fancy loops and the Dice of Doom. Finally, you'll explore laziness, AI, distributed games, and the Hungry Henry game. As you progress through the games, chapter checkpoints and challenges help reinforce what you've learned. Offbeat comics keep things fun along the way. As you travel through the Racket realm, you'll: –Master the quirks of Racket's syntax and semantics –Learn to write concise and elegant functional programs –Create a graphical user interface using the 2htdp/image library –Create a server to handle true multiplayer games Realm of Racket is a lighthearted guide to some serious programming. Read it to see why Racketeers have so much fun!

Java Programs to Accompany Programming Logic and Design - Jo Ann Smith 2012-12-20

The Java PAL is designed to be paired with the Sixth Edition of Joyce Farrell’s Programming Logic and Design text. Together, the two books provide the perfect opportunity for those who want to learn the fundamentals of programming and gain exposure to an actual programming language. Readers can discover how real Java code behaves within the context of the traditional language-independent logic and design course. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Designing Embedded Hardware - John Catsoulis 2002

Intelligent readers who want to build their own embedded computer systems-- installed in everything from cell phones to cars to handheld organizers to refrigerators-- will find this book to be the most in-depth, practical, and up-to-date guide on the market. Designing Embedded Hardware carefully steers between the practical and philosophical aspects, so developers can both create their own devices and gadgets and customize and extend off-the-shelf systems. There are hundreds of books to choose from if you need to learn programming, but only a few are available if you want to learn to create hardware. Designing Embedded Hardware provides software and hardware engineers with no prior experience in embedded systems with the necessary conceptual and design building blocks to understand the architectures of embedded systems. Written to provide the depth of coverage and real-world examples developers need, Designing Embedded Hardware also provides a road-map to the pitfalls and traps to avoid in designing embedded systems. Designing Embedded Hardware covers such essential topics as: The principles of developing computer hardware Core hardware designs Assembly language concepts Parallel I/O Analog-digital conversion Timers (internal and external) UART Serial Peripheral Interface Inter-Integrated Circuit Bus Controller Area Network (CAN) Data Converter Interface (DCI) Low-power operation This invaluable and eminently useful book gives you the practical tools and skills to develop, build, and program your own application-specific computers.

A Little Java, a Few Patterns - Matthias Felleisen 1998

foreword by Ralph E. Johnson and drawings by Duane Bibby 'This is a book of 'why' not 'how.' If you are interested in the nature of computation and curious about the very idea behind object orientation, this book is for you. This book will engage your brain (if not your tummy). Through its sparkling interactive style, you will learn about three essential OO concepts: interfaces, visitors, and factories. A refreshing change from the 'yet another Java book' phenomenon. Every serious Java programmer should own a copy.' -- Gary McGraw, Ph.D., Research Scientist at Reliable Software Technologies and coauthor of Java Security Java is a new object-oriented programming language that was developed by Sun Microsystems for programming the Internet and intelligent appliances. In a very short time it has become one of the most widely used programming languages for education as well as commercial applications. Design patterns, which have moved object-oriented programming to a new level, provide programmers with a language to communicate with others about their designs. As a result, programs become more readable, more reusable, and more easily extensible. In this book, Matthias Felleisen and Daniel Friedman use a small subset of Java to introduce pattern-directed program design. With their usual clarity and flair, they gently guide readers through the fundamentals of object-oriented programming and pattern-based design. Readers new to programming, as well as those with some background, will enjoy their learning experience as they work their way through Felleisen and Friedman's dialogue. src='/graphics/yellowball.gif' href='/books/FELTP/Java-fm.html'Foreword and Preface

Make Space - Scott Doorley 2012-01-03

"If you are determined to encourage creativity and provide a collaborative environment that will bring out the best in people, you will want this book by your side at all times." —Bill Moggridge, Director of the Smithsonian's Cooper-Hewitt National Design Museum "Make Space is an articulate account about the importance of space; how we think about it, build it and thrive in it." —James P. Hackett, President and CEO, Steelcase An inspiring guidebook filled with ways to alter space to fuel creative work and foster collaboration. Based on the work at the Stanford University d.school and its Environments Collaborative Initiative, Make Space is a tool that shows how space can be intentionally manipulated to ignite creativity. Appropriate for designers charged with creating new spaces or anyone interested in revamping an existing space, this guide offers novel and non-obvious strategies for changing surroundings specifically to enhance the ways in which teams and individuals communicate, work, play--and innovate. Inside are: Tools--tips on how to build everything from furniture, to wall treatments, and rigging Situations--scenarios, and layouts for sparking creative activities Insights--bite-sized lessons designed to shortcut your learning curve Space

Studies--candid stories with lessons on creating spaces for making, learning, imagining, and connecting Design Template--a framework for understanding, planning, and building collaborative environments Make Space is a new and dynamic resource for activating creativity, communication and innovation across institutions, corporations, teams, and schools alike. Filled with tips and instructions that can be approached from a wide variety of angles, Make Space is a ready resource for empowering anyone to take control of an environment.

Taligent's Guide to Designing Programs - 1994

A quick overview of Object-oriented program design, with special regard for operating-system development, this book will be of the greatest interest to those developers who are working with Taligent and its operating partners, as well as many other C++ programmers who are interested in a provocative summary of good OOP techniques.

The Science of Programming - David Gries 2012-12-06

Describes basic programming principles and their step-by- step applications.Numerous examples are included.

Advanced Scratch Programming - Abhay Joshi 2016-08-15

There is a lot of material on Scratch Programming on the Internet, including videos, online courses, Scratch projects, and so on, but, most of it is introductory. There is very little that can take students to the next level, where they can apply their Scratch and CS concepts to exciting and challenging problems. There is also very little material that shows students how to design complex projects, and introduces them to the process of programming.This book is meant to fill these gaps.In short, this book is for students who are already familiar with Scratch: its various commands, its user interface, and how it represents a variety of CS concepts such as, variables, conditional statements, looping, and so on. The book does not attempt to teach these concepts, but, it does provide a quick introduction to each concept in the free Supplement to the book.I call this an "interactive book" because it is something between a traditional book - which is static and passive - and a fully interactive online course. It does look like a book: it has a series of chapters, diagrams, a lot of text, etc. But it also contains links to online Scratch programs, code snippets, references, which the reader is expected to click and explore to fully benefit from the ideas presented.I have organized the book as a series of independent Scratch projects - each of which describes how to design and build an interesting and challenging Scratch program. Each project progresses in stages - from a simple implementation to increasingly complex versions. You can read these chapters in any order you like, although I have tried to arrange the chapters in an increasing order of challenge.Programming is a powerful tool that can be applied to virtually any field of human endeavor. I have tried to maintain a good diversity of applications in this book. You will find the following types of projects:-Simple ball games-Puzzle games-Memory games-Science simulations-Math games-Geometric designsLearn the concepts:As the experts will tell you, concepts are really understood and internalized when you apply them to solve problems. The purpose of this book is to help you apply Scratch and CS concepts to solve interesting and challenging programming problems. Every chapter lists, at the very start, the Scratch and CS concepts that you will apply while building that project.Learn the design process:Besides these technical concepts, you will also learn the "divide and conquer" approach of problem-solving. This is a fancy term for the technique of breaking down a bigger problem into many smaller problems and solving them separately one by one.You will also learn the "iterative design process" for designing programs. This is another fancy name that describes the idea that something complex can be designed in a repeated idea -> implement -> test cycle, such that in each cycle we add a little more complexity.You will also learn a bit of "project management". Project management helps you undertake a project, such as creating a complex program, and complete it in a reasonable time, with reasonable effort, and with reasonable quality. It involves things such as planning tasks, tracking their progress, etc.Audience for the book:The book is intended for students who are already familiar with Scratch. The level of challenge is tuned for middle- and high-school students, but elementary-school students who have picked up all the concepts in an introductory course might also be able to enjoy the projects presented in this book.The book would be a great resource for teachers who teach Scratch programming. They could use the projects to teach advanced tricks of programming and to show how complex programs are designed.Finally, the book is for anyone who wants to get the wonderful taste of the entertaining and creative aspect of Computer Programming.

How to Design Programs, second edition - Matthias Felleisen 2018-05-25

A completely revised edition, offering new design recipes for interactive programs and support for images as plain values, testing, event-driven programming, and even distributed programming. This introduction to programming places computer science at the core of a liberal arts education. Unlike other introductory books, it focuses on the program design process, presenting program design guidelines that show the reader how to analyze a problem statement, how to formulate concise goals, how to make up examples, how to develop an outline of the solution, how to finish the program, and how to test it. Because learning to design programs is about the study of principles and the acquisition of transferable skills, the text does not use an off-the-shelf industrial language but presents a tailor-made teaching language. For the same reason, it offers DrRacket, a programming environment for novices that supports playful, feedback-oriented learning. The environment grows with readers as they master the material in the book until it supports a full-fledged language for the whole spectrum of programming tasks. This second edition has been completely revised. While the book continues to teach a systematic approach to program design, the second edition introduces different design recipes for interactive programs with graphical interfaces and batch programs. It also enriches its design recipes for functions with numerous new hints. Finally, the teaching languages and their IDE now come with support for images as plain values, testing, event-driven programming, and even distributed programming.

Designing Elixir Systems with Otp: Write Highly Scalable, Self-Healing Software with Layers - James Edward Gray 2019-11-04

You know how to code in Elixir; now learn to think in it. Learn to design libraries with intelligent layers that shape the right data structures, flow from one function into the next, and present the right APIs. Embrace the same OTP that's kept our telephone systems reliable and fast for over 30 years. Move beyond understanding the OTP functions to knowing what's happening under the hood, and why that matters. Using that knowledge, instinctively know how to design systems that deliver fast and resilient services to your users, all with an Elixir focus. Elixir is gaining mindshare as the programming language you can use to keep you software running forever, even in the face of unexpected errors and an ever growing need to use more processors. This power comes from an effective programming language, an excellent foundation for concurrency and its inheritance of a battle-tested framework called the OTP. If you're using frameworks like Phoenix or Nerves, you're already experiencing the features that make Elixir an excellent language for today's demands. This book shows you how to go beyond simple programming to designing, and that means building the right layers. Embrace those data structures that work best in functional programs and use them to build functions that perform and compose well, layer by layer, across processes. Test your code at the right place using the right techniques. Layer your code into pieces that are easy to understand and heal themselves when errors strike. Of all Elixir's boons, the most important one is that it guides us to design our programs in a way to most benefit from the architecture that they run on. The experts do it and now you can learn to design programs that do the same. What You Need: Elixir Version 1.7 or greater.

Occupational Outlook Handbook - United States. Bureau of Labor Statistics 1976

Design Patterns - Erich Gamma 1995

Software -- Software Engineering.

Designing Resistance Training Programs - Steven J. Fleck 2014-03-17

Designing Resistance Training Programs, Fourth Edition, is a guide to developing individualized training programs for both serious athletes and fitness enthusiasts. In this updated and expanded fourth edition, two of the world’s leading experts on strength training explore how to design scientifically based resistance training programs, modify and adapt programs to meet the needs of special populations, and apply the elements of program design in the real world. Fleck and Kraemer provide readers with a thorough understanding of the process of designing resistance training programs from both scientific and practical perspectives. As with previous editions, the fourth edition includes comprehensive tables that compare data and conclusions from research on core topics related to design of resistance training programs. By summarizing research and content for the reader, these tables offer a study guide, on-the-job reference, or

starting point for further research. Designing Resistance Training Programs, Fourth Edition, is the only resource available that presents the body of research in the field in this organized and comprehensive format. The fourth edition has been thoroughly revised to present the most current information while retaining the studies that are the basis for concepts, guidelines, and applications in resistance training. Meticulously updated and heavily referenced, the fourth edition contains the following updates: • A full-color interior provides stronger visual appeal for the text. • Sidebars focus on a specific practical question or an applied research concept, allowing readers to connect research to real-life situations. • Multiple detailed tables summarize research from the text, offering an easy way to compare data and conclusions. • A glossary makes it simple to find key terms in one convenient location. • Newly added instructor ancillaries make the fourth edition a true learning resource for the classroom. Designing Resistance Training Programs, Fourth Edition, begins by outlining the principles of resistance training and exercise prescription, and examines the various types of strength training, including isometrics and eccentric training. This is followed by a discussion of resistance training from a physiological perspective and an overview of how resistance training programs interact with the other conditioning components such as aerobic, interval, plyometric, and flexibility training. Readers will then explore advanced training techniques, how to manipulate training variables in a long-term resistance training program, and ways to plan rest into long-term training that minimizes losses in fitness or performance gains. An important text for students, researchers, and practitioners, this textbook offers the information and tools to help readers evaluate resistance training programs and better understand the context and efficacy of new data findings in this ever-changing field. Designing Resistance Training Programs, Fourth Edition, is an essential resource for understanding the science behind resistance training and designing evidence-based resistance training programs for any population. This text provides the tools for understanding and designing resistance training programs for almost any situation or need.

Answer Set Programming - Vladimir Lifschitz 2019-08-29

Answer set programming (ASP) is a programming methodology oriented towards combinatorial search problems. In such a problem, the goal is to find a solution among a large but finite number of possibilities. The idea of ASP came from research on artificial intelligence and computational logic. ASP is a form of declarative programming: an ASP program describes what is counted as a solution to the problem, but does not specify an algorithm for solving it. Search is performed by sophisticated software systems called answer set solvers. Combinatorial search problems often arise in science and technology, and ASP has found applications in diverse areas—in historical linguistic, in bioinformatics, in robotics, in space exploration, in oil and gas industry, and many others. The importance of this programming method was recognized by the Association for the Advancement of Artificial Intelligence in 2016, when AI Magazine published a special issue on answer set programming. The book introduces the reader to the theory and practice of ASP. It describes the input language of the answer set solver CLINGO, which was designed at the University of Potsdam in Germany and is used today by ASP programmers in many countries. It includes numerous examples of ASP programs and present the mathematical theory that ASP is based on. There are many exercises with complete solutions.

The Design of Well-Structured and Correct Programs - Suad Alagic 2011-10-23

The major goal of this book is to present the techniques of top-down program design and verification of program correctness hand-in-hand. It thus aims to give readers a new way of looking at algorithms and their design, synthesizing ten years of research in the process. It provides many examples of program and proof development with the aid of a formal and informal treatment of Hoare's method of invariants. Modem widely accepted control structures and data structures are explained in detail, together with their formal definitions, as a basis for their use in the design of correct algorithms. We provide and apply proof rules for a wide range of program structures, including conditionals, loops, procedures and recur sion. We analyze situations in which the restricted use of gotos can be justified, providing a new approach to proof rules for such situations. We study several important techniques of data structuring, including arrays, files, records and linked structures. The secondary goal of this book is to teach the reader how to use the programming language Pascal. This is the first text to teach Pascal pro gramming in a fashion which not only includes advanced algorithms which operate on advanced data structures, but also provides the full axiomatic definition of Pascal due to Wirth and Hoare. Our approach to the language is very different from that of a conventional programming text.

Designing Your Life - Bill Burnett 2016-09-20

#1 NEW YORK TIMES BEST SELLER • At last, a book that shows you how to build—design—a life you can thrive in, at any age or stage Designers create worlds and solve problems using design thinking. Look around your office or home—at the tablet or smartphone you may be holding or the chair you are sitting in. Everything in our lives was designed by someone. And every design starts with a problem that a designer or team of designers seeks to solve. In this book, Bill Burnett and Dave Evans show us how design thinking can help us create a life that is both meaningful and fulfilling, regardless of who or where we are, what we do or have done for a living, or how young or old we are. The same design thinking responsible for amazing technology, products, and spaces can be used to design and build your career and your life, a life of fulfillment and joy, constantly creative and productive, one that always holds the possibility of surprise.

Principles of Program Design - M. A. Jackson 1975

The original program design text, this book is about programming for data processing applications, and it presents a coherent method and procedure for designing systems, programs, and components that are transparently simple and self evidently correct. The main emphasis is on the structure--on the dissection of a problem into parts and the arrangement of those parts to form a solution. Exercises and questions for discussion are given at the end of almost every chapter.

Python for Software Design - Allen Downey 2009-03-09

Python for Software Design is a concise introduction to software design using the Python programming language. The focus is on the programming process, with special emphasis on debugging. The book includes a wide range of exercises, from short examples to substantial projects, so that students have ample opportunity to practice each new concept.

Turning Training into Learning - Sheila W. Furjanic 2000-03-01

Just as you can lead a horse to water, but it won't necessarily drink, so you can give an employee training, but he may not actually learn...unless, of course, the trainer uses this insightful new book. Turning Training into Learning provides a specific, tested method for making sure training equals real learning. Written for anyone who must train others, this step-by-step guide shows exactly how to create a program that engages trainees and ensures that they remember and use what they've learned when they get back to work. Readers learn how to: * Analyze exactly what a particular trainee needs * Establish a safe environment where questions are welcomed * Demonstrate to learners why the training is relevant to them * Understand the process by which adults learn * Place real learning within the context of the traditional training cycle: assessment, design, delivery, and evaluation.

Understanding by Design - Grant Wiggins 2005

Presents a multifaceted model of understanding, which is based on the premise that people can demonstrate understanding in a variety of ways.

The Little LISPer - Daniel P. Friedman 1989

Software Design for Flexibility - Chris Hanson 2021-03-09

Strategies for building large systems that can be easily adapted for new situations with only minor programming modifications. Time pressures encourage programmers to write code that works well for a narrow purpose, with no room to grow. But the best systems are evolvable; they can be adapted for new situations by adding code, rather than changing the existing code. The authors describe techniques they have found effective--over their combined 100-plus years of programming experience--that will help programmers avoid programming themselves into corners. The authors explore ways to enhance flexibility by: • Organizing systems using combinators to compose mix-and-match parts, ranging from small functions to whole arithmetics, with standardized interfaces • Augmenting data with independent annotation layers, such as units of measurement or provenance • Combining independent pieces of partial information using unification or propagation • Separating control structure from problem domain with domain models, rule systems and pattern matching, propagation, and dependency-directed backtracking • Extending the programming language, using dynamically extensible evaluators

Designing Data-Intensive Applications - Martin Kleppmann 2017-03-16
Data is at the center of many challenges in system design today. Difficult issues need to be figured out, such as scalability, consistency, reliability, efficiency, and maintainability. In addition, we have an overwhelming variety of tools, including relational databases, NoSQL datastores, stream or batch processors, and message brokers. What are the right choices for your application? How do you make sense of all these buzzwords? In this practical and comprehensive guide, author Martin Kleppmann helps you navigate this diverse landscape by examining the pros and cons of various technologies for processing and storing data. Software keeps changing, but the fundamental principles remain the same. With this book, software engineers and architects will learn how to apply those ideas in practice, and how to make full use of data in modern applications. Peer under the hood of the systems you already use, and learn how to use and operate them more effectively Make informed decisions by identifying the strengths and weaknesses of different tools Navigate the trade-offs around consistency, scalability, fault tolerance, and complexity Understand the distributed systems research upon which modern databases are built Peek behind the scenes of major online services, and learn from their architectures
A Practical Theory of Programming - Eric C.R. Hehner 2012-09-08
There are several theories of programming. The first usable theory, often called "Hoare's Logic", is still probably the most widely known. In it, a specification is a pair of predicates: a precondition and postcondition (these and all technical terms will be defined in due course). Another popular and closely related theory by Dijkstra uses the weakest precondition predicate transformer, which is a function from programs and postconditions to preconditions. lones's Vienna Development Method has been used to advantage in some industries; in it, a specification is a pair of predicates (as in Hoare's Logic), but the second predicate is a relation. Temporal Logic is yet another formalism that introduces some special operators and quantifiers to describe some aspects of computation. The theory in this book is simpler than any of those just mentioned. In it, a specification is just a boolean expression. Refinement is just ordinary implication. This theory is also more general than those just mentioned, applying to both terminating and nonterminating computation, to both sequential and parallel computation, to both stand-alone and interactive computation. And it includes time bounds, both for algorithm classification and for tightly constrained real-time applications.
Essentials of Programming Languages, third edition - Daniel P. Friedman 2008-04-18
A new edition of a textbook that provides students with a deep, working understanding of the essential concepts of programming languages, completely revised, with significant new material. This book provides students with a deep, working understanding of the essential concepts of programming languages. Most of these essentials relate to the semantics, or meaning, of program elements, and the text uses interpreters (short programs that directly analyze an abstract representation of the program text) to express the semantics of many essential language elements in a way that is both clear and executable. The approach is both analytical and hands-on. The book provides views of programming languages using widely varying levels of abstraction, maintaining a clear connection between the high-level and low-level views. Exercises are a vital part of the text and are scattered throughout; the text explains the key concepts, and the exercises explore alternative designs and other issues. The complete Scheme code for all the interpreters and analyzers in the book can be found online through The MIT Press web site. For this new edition, each chapter has been revised and many new exercises have been added. Significant additions have been made to the text, including completely new chapters on modules and continuation-passing style. Essentials of Programming Languages can be used for both graduate and undergraduate courses, and for continuing education courses for programmers.
Structure and Interpretation of Computer Programs - Harold Abelson 2022-05-03
A new version of the classic and widely used text adapted for the JavaScript programming language. Since the publication of its first edition in 1984 and its second edition in 1996, Structure and Interpretation of Computer Programs (SICP) has influenced computer science curricula around the world. Widely adopted as a textbook, the book has its origins in a popular entry-level computer science course taught by Harold Abelson and Gerald Jay Sussman at MIT. SICP introduces the reader to central ideas of computation by establishing a series of mental models for computation. Earlier editions used the programming language Scheme in their program examples. This new version of the second edition has been adapted for JavaScript. The first three chapters of SICP cover programming concepts that are common to all modern high-level programming languages. Chapters four and five, which used Scheme to formulate language processors for Scheme, required significant revision. Chapter four offers new material, in particular an introduction to the notion of program parsing. The evaluator and compiler in chapter five introduce a subtle stack discipline to support return statements (a prominent feature of statement-oriented languages) without sacrificing tail recursion. The JavaScript programs included in the book run in any implementation of the language that complies with the ECMAScript 2020 specification, using the JavaScript package sicp provided by the MIT Press website.
Design Thinking for Training and Development - Sharon Boller 2020-06-09
Better Learning Solutions Through Better Learning Experiences When training and development initiatives treat learning as something that occurs as a one-time event, the learner and the business suffer. Using design thinking can help talent development professionals ensure learning sticks to drive improved performance. Design Thinking for Training and Development offers a primer on design thinking, a human-centered process and problem-solving methodology that focuses on involving users of a solution in its design. For effective design thinking, talent development professionals need to go beyond the UX, the user experience, and incorporate the LX, the learner experience. In this how-to guide for applying design thinking tools and techniques, Sharon Boller and Laura Fletcher share how they adapted the traditional design thinking process for training and development projects. Their process involves steps to: • Get perspective. • Refine the problem. • Ideate and prototype. • Iterate (develop, test, pilot, and refine). • Implement. Design thinking is about balancing the three forces on training and development programs: learner wants and needs, business needs, and constraints. Learn how to get buy-in from skeptical stakeholders. Discover why taking requests for training, gathering the perspective of stakeholders and learners, and crafting problem statements will uncover the true issue at hand. Two in-depth case studies show how the authors made design thinking work. Job aids and tools featured in this book include: • a strategy blueprint to uncover what a stakeholder is trying to solve • an empathy map to capture the learner's thoughts, actions, motivators, and challenges • an experience map to better understand how the learner performs. With its hands-on, use-it-today approach, this book will get you started on your own journey to applying design thinking.
Software Engineering at Google - Titus Winters 2020-02-28
Today, software engineers need to know not only how to program effectively but also how to develop proper engineering practices to make their codebase sustainable and healthy. This book emphasizes this difference between programming and software engineering. How can software engineers manage a living codebase that evolves and responds to changing requirements and demands over the length of its life? Based on their experience at Google, software engineers Titus Winters and Hyrum Wright, along with technical writer Tom Manshreck, present a candid and insightful look at how some of the world's leading practitioners construct and maintain software. This book covers Google's unique engineering culture, processes, and tools and how these aspects contribute to the effectiveness of an engineering organization. You'll explore three fundamental principles that software organizations should keep in mind when designing, architecting, writing, and maintaining code: How time affects the sustainability of software and how to make your code resilient over time How scale affects the viability of software practices within an engineering organization What trade-offs a typical engineer needs to make when evaluating design and development decisions
How to Design Programs, second edition - Matthias Felleisen 2018-05-04
A completely revised edition, offering new design recipes for interactive programs and support for images as plain values, testing, event-driven programming, and even distributed programming. This introduction to programming places computer science at the core of a liberal arts education. Unlike other introductory books, it focuses on the program design process, presenting program design guidelines that show the reader how to analyze a problem statement, how to formulate concise goals, how to make up examples, how to develop an outline of the solution, how to finish the program, and how to test it. Because learning to design programs is about the study of principles and the acquisition of transferable skills, the text does not use an off-the-shelf industrial language but presents a tailor-made teaching language. For the same reason,

it offers DrRacket, a programming environment for novices that supports playful, feedback-oriented learning. The environment grows with readers as they master the material in the book until it supports a full-fledged language for the whole spectrum of programming tasks. This second edition has been completely revised. While the book continues to teach a systematic approach to program design, the second edition introduces different design recipes for interactive programs with graphical interfaces and batch programs. It also enriches its design recipes for functions with numerous new hints. Finally, the teaching languages and their IDE now come with support for images as plain values, testing, event-driven programming, and even distributed programming.