

## Computer Science Illuminated Fifth Edition

Computer Networks: A Systems Approach, Fifth Edition, explores the key principles of computer networking, with examples drawn from the real world of network and protocol design. Using the Internet as the primary example, this best-selling and classic textbook explains various protocols and networking technologies. The systems-oriented approach encourages students to think about how individual network components fit into a larger, complex system of interactions. This book has a completely updated content with expanded coverage of the topics of utmost importance to networking professionals and students, including P2P, wireless, network security, and network applications such as e-mail and the Web, IP telephony and video streaming, and peer-to-peer file sharing. There is now increased focus on application layer issues where innovative and exciting research and design is currently the center of attention. Other topics include network design and architecture; the ways users can connect to a network; the concepts of switching, routing, and internetworking; end-to-end protocols; congestion control and resource allocation; and end-to-end data. Each chapter includes a problem statement, which introduces issues to be examined; shaded sidebars that elaborate on a topic or introduce a related advanced topic; What's Next? discussions that deal with emerging issues in research, the commercial world, or society; and exercises. This book is written for graduate or upper-division undergraduate classes in computer networking. It will also be useful for industry professionals retraining for network-related assignments, as well as for network practitioners seeking to understand the workings of network protocols and the big picture of networking. Completely updated content with expanded coverage of the topics of utmost importance to networking professionals and students, including P2P, wireless, security, and applications Increased focus on application layer issues where innovative and exciting research and design is currently the center of attention Free downloadable network simulation software and lab experiments manual available

Appropriate for Computer Networking or Introduction to Networking courses at both the undergraduate and graduate level in Computer Science, Electrical Engineering, CIS, MIS, and Business Departments. Tanenbaum takes a structured approach to explaining how networks work from the inside out. He starts with an explanation of the physical layer of networking, computer hardware and transmission systems; then works his way up to network applications. Tanenbaum's in-depth application coverage includes email; the domain name system; the World Wide Web (both client- and server-side); and multimedia (including voice over IP, Internet radio video on demand, video conferencing, and streaming media.

Miller/O'Neill/Hyde, built by teachers just like you, continues to offer an enlightened approach grounded in the fundamentals of classroom experience in the 2nd edition of Intermediate Algebra. The practice of many instructors in the classroom is to present examples and have their students solve similar problems. This is realized through the Skill Practice Exercises that directly follow the examples in the textbook. Throughout the text, the authors have integrated many Study Tips and Avoiding Mistakes hints, which are reflective of the comments and instruction presented to students in the classroom. In this way, the text communicates to students, the very points their instructors are likely to make during lecture, helping to reinforce the concepts and provide instruction that leads students to mastery and success. The authors included in this edition, Problem-Recognition exercises, that many instructors will likely identify to be similar to worksheets they have personally developed for distribution to students. The intent of the Problem-Recognition exercises, is to help students overcome what is sometimes a natural inclination toward applying problem-solving algorithms that may not always be appropriate. In addition, the exercise sets have been revised to include even more core exercises than were present in the first edition. This permits instructors to choose from a wealth of problems, allowing ample opportunity for students to practice what they learn in lecture to hone their skills and develop the knowledge they need to make a successful transition into College Algebra. In this way, the book perfectly complements any learning platform, whether traditional lecture or distance-learning; its instruction is so reflective of what comes from lecture, that students will feel as comfortable outside of class, as they do inside class with their instructor. For even more support, students have access to a wealth of supplements, including McGraw-Hill's online homework management system, MathZone.

This guide offers students an overview of computer science principles, and provides a solid foundation for those continuing their study in this dynamic and exciting discipline. New features of this edition include: a chapter on computer security providing readers with the latest information on preventing unauthorized access; types of malware and anti-virus software; protecting online information, including data collection issues with Facebook, Google, etc.; security issues with mobile and portable devices; a new section on cloud computing offering readers an overview of the latest way in which businesses and users interact with computers and mobile devices; a rewritten section on social networks including new data on Google+ and Facebook; updates to include HTML5; revised and updated Did You Know callouts are included in the chapter margins; revisions of recommendations by the ACM dealing with computer ethic issues. --

Assembly Language Programming Made Clear: A Systematic Approach teaches students the fundamentals of assembly language programming through the use of two pseudo-languages that enable them to design their programs. It also prepares them to write their programs by teaching them the structure of the necessary registers. Chapters are organized so that information is presented in manageable chunks, all supported with clear examples and include exercises that allow students to immediately apply what they have learned. Over the course of the book students will work with number bases for integers, simple algorithms for converting between a number base and the base, if-then and while conditional statements, and arithmetic expressions. They will also study dynamic storage for decimal numbers through stacks and strings, string arrays, and much more. The book includes an appendix on signed numbers and the flag signals. Assembly Language Programming Made Clear can be used in courses within computer science programs. Its cogent discussion of foundational skills also makes it appropriate for classes in anti-virus software and those that prepare students for the development of higher-level language.

Effectively balance today's most important programming principles and concepts with the latest insights into C# using Doyle's C# PROGRAMMING: FROM PROBLEM ANALYSIS TO PROGRAM DESIGN, 4E. This insightful introductory book highlights the latest Visual Studio 2012 and C# 4.0 software with a unique, principles-based approach to give readers a deep understanding of programming. Respected author Barbara Doyle admirably balances principles and concepts, offering just the right amount of detail to create a strong foundation for beginning students. A straightforward approach and understandable vocabulary make it easy for readers to grasp new programming concepts without distraction. The book introduces a variety of fundamental programming concepts, from data types and expressions to arrays and collections, all using the popular C# language. New programming exercises and new numbered examples throughout this edition reflect the latest updates in Visual Studio 2012, while learning objectives, case studies and Coding Standards summaries in each chapter ensure mastery. While this edition assumes no prior programming knowledge, coverage extends beyond traditional programming books to cover new advanced topics, such as portable class libraries to create applications for Windows Phone and other platforms. With entire chapters devoted to working with databases and Web-based applications, you'll find everything you need for a solid understanding of C# and programming fundamentals for ongoing success. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

A Gateway to Higher Mathematics integrates the process of teaching students how to do proofs into the framework of displaying the development of the real number system. The text eases the students into learning how to construct proofs, while preparing students how to cope with the type of proofs encountered in the higher-level courses of abstract algebra, analysis, and number theory. After using this text, the students will not only know how to read and construct proofs, they will understand much about the basic building blocks of mathematics. The text is designed so that the professor can choose the topics to be emphasized, while leaving the remainder as a reference for the

students.

Bring your computer literacy course back to the BASICS. COMPUTER LITERACY BASICS: A COMPREHENSIVE GUIDE TO IC3 provides an introduction to computer concepts and skills, which maps to the newest Computing Core Certification (IC3) standards. Designed with new learners in mind, this text covers Computing Fundamentals, Key Applications, and Living Online everything your students need to be prepared to pass the IC3 exam, and finish the course as confident computer users. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Provides a comprehensive introduction to programming using the most current version of the Java language. In addition to providing all of the material necessary for a complete introductory course in Java programming, the book also features flexible coverage of other topics of interest.

Structured Computer Organization, specifically written for undergraduate students, is a best-selling guide that provides an accessible introduction to computer hardware and architecture. This text will also serve as a useful resource for all computer professionals and engineers who need an overview or introduction to computer architecture. This book takes a modern structured, layered approach to understanding computer systems. It's highly accessible - and it's been thoroughly updated to reflect today's most critical new technologies and the latest developments in computer organization and architecture. Tanenbaum's renowned writing style and painstaking research make this one of the most accessible and accurate books available, maintaining the author's popular method of presenting a computer as a series of layers, each one built upon the ones below it, and understandable as a separate entity.

Designed for a first Computer Science (CS1) Java course, JAVA PROGRAMMING: FROM PROBLEM ANALYSIS TO PROGRAM DESIGN, 5e, International Edition will motivate your students while building a cornerstone for the Computer Science curriculum. With a focus on your students' learning, this text approaches programming using the latest version of Java, and includes updated programming exercises and programs. The engaging and clear-cut writing style will help your students learn key concepts through concise explanations and practice in this complex and powerful language.

Starting Out with Programming Logic and Design, Third Edition, is a language-independent introductory programming book that orients students to programming concepts and logic without assuming any previous programming experience. In the successful, accessible style of Tony Gaddis' best-selling texts, useful examples and detail-oriented explanations allow students to become comfortable with fundamental concepts and logical thought processes used in programming without the complication of language syntax. Students gain confidence in their program design skills to transition into more comprehensive programming courses. The book is ideal for a programming logic course taught as a precursor to a language-specific introductory programming course, or for the first part of an introductory programming course.

The Architecture of Computer Hardware, Systems Software and Networking is designed help students majoring in information technology (IT) and information systems (IS) understand the structure and operation of computers and computer-based devices. Requiring only basic computer skills, this accessible textbook introduces the basic principles of system architecture and explores current technological practices and trends using clear, easy-to-understand language. Throughout the text, numerous relatable examples, subject-specific illustrations, and in-depth case studies reinforce key learning points and show students how important concepts are applied in the real world. This fully-updated sixth edition features a wealth of new and revised content that reflects today's technological landscape. Organized into five parts, the book first explains the role of the computer in information systems and provides an overview of its components.

Subsequent sections discuss the representation of data in the computer, hardware architecture and operational concepts, the basics of computer networking, system software and operating systems, and various interconnected systems and components. Students are introduced to the material using ideas already familiar to them, allowing them to gradually build upon what they have learned without being overwhelmed and develop a deeper knowledge of computer architecture.

With a variety of interactive learning features and user-friendly pedagogy, Java 5 Illuminated provides a comprehensive introduction to programming using the most current version of the Java language, Java 5. In addition to providing all of the material necessary for a complete introductory course in Java programming, the book also features flexible coverage of other topics of interest, including Graphical User Interfaces, data structures, file input and output, and applets. Object-Oriented Programming concepts are developed progressively and reinforced through numerous Programming Activities, allowing students to fully understand and implement both basic and sophisticated techniques at a pace which is neither too fast nor too slow. OO concepts are blended appropriately with fundamental programming techniques, including accumulation, counting, finding maximum and minimum values, and using flag and toggle variables, and supplemented with coverage of sound software engineering practices. Distinguishing this text from other introductory Java books is the authors' extensive use of an "active learning" approach to presenting the material through abundant use of graphics, visualization exercises, animations, numerous full and partial program examples, group projects, and best practices. These and other pedagogical devices facilitate hands-on, interactive learning, and make the book equally appropriate for use in "traditional" lecture environments, a computer-equipped classroom, or lab environment. Java 5 Illuminated Errata Sheet

Radio Production is for professionals and students interested in understanding the radio industry in today's ever-changing world. This book features up-to-date coverage of the purpose and use of radio with detailed coverage of current production techniques in the studio and on location. In addition there is exploration of technological advances, including handheld digital recording devices, the use of digital, analogue and virtual mixing desks and current methods of music storage and playback. Within a global context, the sixth edition also explores American radio by providing an overview of the rules, regulations, and purpose of the Federal Communications Commission. The sixth edition includes: Updated material on new digital recording methods, and the development of outside broadcast techniques, including Smartphone use. The use of social media as news sources, and an expansion of the station's presence. Global government

regulation and journalistic codes of practice. Comprehensive advice on interviewing, phone-ins, news, radio drama, music, and scheduling. This edition is further enhanced by a companion website, featuring examples, exercises, and resources: [www.focalpress.com/cw/mcleish](http://www.focalpress.com/cw/mcleish).

This is a concise and informal introductory book on the mathematical concepts that underpin computer graphics. The author, John Vince, makes the concepts easy to understand, enabling non-experts to come to terms with computer animation work. The book complements the author's other works and is written in the same accessible and easy-to-read style. It is also a useful reference book for programmers working in the field of computer graphics, virtual reality, computer animation, as well as students on digital media courses, and even mathematics courses.

Bestselling Programming Tutorial and Reference Completely Rewritten for the New C++11 Standard Fully updated and recast for the newly released C++11 standard, this authoritative and comprehensive introduction to C++ will help you to learn the language fast, and to use it in modern, highly effective ways. Highlighting today's best practices, the authors show how to use both the core language and its standard library to write efficient, readable, and powerful code. C++ Primer, Fifth Edition, introduces the C++ standard library from the outset, drawing on its common functions and facilities to help you write useful programs without first having to master every language detail. The book's many examples have been revised to use the new language features and demonstrate how to make the best use of them. This book is a proven tutorial for those new to C++, an authoritative discussion of core C++ concepts and techniques, and a valuable resource for experienced programmers, especially those eager to see C++11 enhancements illuminated. Start Fast and Achieve More Learn how to use the new C++11 language features and the standard library to build robust programs quickly, and get comfortable with high-level programming. Learn through examples that illuminate today's best coding styles and program design techniques Understand the "rationale behind the rules": why C++11 works as it does Use the extensive crossreferences to help you connect related concepts and insights Benefit from up-to-date learning aids and exercises that emphasize key points, help you to avoid pitfalls, promote good practices, and reinforce what you've learned Access the source code for the extended examples from [informit.com/title/0321714113](http://informit.com/title/0321714113) C++ Primer, Fifth Edition, features an enhanced, layflat binding, which allows the book to stay open more easily when placed on a flat surface. This special binding method—notable by a small space inside the spine—also increases durability.

Presents an illustrated A-Z encyclopedia containing approximately 600 entries on computer and technology related topics.

The Self and the Quintessence explores Jung's work on number symbolism and the alchemical journey and considers how they act as metaphors underpinning theories about the development of the self and individuation. It goes on to consider the implications of these dynamics in terms of the symbol of the quintessence and what this represents psychologically. Initially exploring number symbolism and the way numbers can express dimensionality and emergence, this book explores the theories which underpin Jung's ideas about the self and its complexity, including the dynamics of opposites, the transcendent function, and the symbol of the quaternity (fourness). The book then explores the symbol of the quintessence from a theoretical and clinical perspective and also in relation to its use in alchemy and physics. It goes on to consider the symbolic and psychological significance of the quintessence in relation to complexity, emergence, individuation, wholeness, truth and the spirit of matter. Extending Jungian ideas to explore the archetypal symbol of the quintessence and its psychological significance, The Self and the Quintessence will be of great interest to Jungian academics, researchers and clinicians, and anyone looking to expand their knowledge and understanding of Jungian psychology.

In this revolutionary book, a renowned computer scientist explains the importance of teaching children the basics of computing and how it can prepare them to succeed in the ever-evolving tech world. Computers have completely changed the way we teach children. We have Mindstorms to thank for that. In this book, pioneering computer scientist Seymour Papert uses the invention of LOGO, the first child-friendly programming language, to make the case for the value of teaching children with computers. Papert argues that children are more than capable of mastering computers, and that teaching computational processes like de-bugging in the classroom can change the way we learn everything else. He also shows that schools saturated with technology can actually improve socialization and interaction among students and between students and teachers. Technology changes every day, but the basic ways that computers can help us learn remain. For thousands of teachers and parents who have sought creative ways to help children learn with computers, Mindstorms is their bible.

The user-friendly, object-oriented programming language Python is quickly becoming the most popular introductory programming language for both students and instructors. This updated Second Edition of Python Programming in Context provides a comprehensive, accessible introduction to Python fundamentals. An ideal first language for learners entering the rapidly expanding field of computer science, Python gives students a solid platform of key problem-solving skills that translate easily across programming languages. Building on essential concepts of computer science, and offering a plenitude of real-world examples, Python Programming in Context, Second Edition offers a thorough overview of multiple applied areas, including image processing, cryptography, astronomy, the Internet, and bioinformatics. The text's emphasis on problem-solving, extrapolation, and development of independent exploration and solution-building provides students with a unique and innovative approach to learning programming. Python Programming in Context, Second Edition is the ideal introductory text for those delving into computer programming. Key Features - Utilizes Python 3 - Provides a clear, accessible, and skill-focused approach to programming with Python - Contains problem sets based on real-world examples and problem-solving rather than language features - Offers a variety of exercises that develop independent skill-building and exploration - Every new copy of the text is packaged with full student access to Turing's Craft Custom CodeLab. Customized to match the organization of the text, CodeLab offers students hands-on Python programming experience with immediate feedback. - Accompanied by a full suite of instructor support material, including solutions to the exercises in the text, downloadable source code, PowerPoint Lecture Outlines, and a complete Test Bank.

The Comprehensive Guide to Computer Security, Extensively Revised with Newer Technologies, Methods, Ideas, and Examples In this updated guide, University of California at Davis Computer Security Laboratory co-director Matt Bishop offers clear, rigorous, and thorough coverage of modern computer security. Reflecting dramatic growth in the quantity, complexity, and consequences of security incidents, Computer Security, Second Edition, links core principles with technologies, methodologies, and ideas that have emerged since the first edition's publication. Writing for advanced undergraduates, graduate students, and IT professionals, Bishop covers foundational issues, policies, cryptography, systems design, assurance, and much more. He thoroughly addresses malware, vulnerability analysis, auditing, intrusion detection, and best-practice responses to attacks. In addition to new examples throughout, Bishop presents entirely new chapters on availability policy models and attack analysis. Understand computer security goals, problems, and challenges, and the deep links between theory and practice Learn how computer scientists seek to prove whether systems are secure Define security policies for confidentiality, integrity, availability, and more Analyze policies to reflect core questions of trust, and use them to constrain operations and change Implement cryptography as one component of a wider computer and network security strategy Use system-oriented techniques to establish effective security mechanisms, defining who can act and what they can do Set appropriate security goals for a system or product, and ascertain how well it meets them Recognize program flaws and malicious logic, and detect attackers seeking to exploit them This is both a comprehensive text, explaining the most fundamental and pervasive aspects of the field, and a detailed reference. It will help you align security concepts with realistic policies, successfully implement your policies, and thoughtfully manage the trade-offs that inevitably arise. Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

## Computer Science

With a variety of interactive learning features and user-friendly pedagogy, the Third Edition provides a comprehensive introduction to programming using the most current version of Java. Throughout the text the authors incorporate an "active learning approach" which asks students to take an active role in their understanding of the language through the use of numerous interactive examples, exercises, and projects. Object-oriented programming concepts are developed progressively and reinforced through numerous Programming Activities, allowing students to fully understand and implement both basic and sophisticated techniques. In response to students growing interest in animation and visualization the text includes techniques for producing graphical output and animations beginning in Chapter 4 with applets and continuing throughout the text. You will find Java Illuminated, Third Edition comprehensive and user-friendly. Students will find it exciting to delve into the world of programming with hands-on, real-world applications! New to the Third Edition: - Includes NEW examples and projects throughout - Every NEW copy of the text includes a CD-ROM with the following: \*programming activity framework code\* full example code from each chapter \*browser-based modules with visual step-by-step demonstrations of code execution\* links to popular integrated development environments and the Java Standard Edition JDK - Every new copy includes full student access to TuringsCraft Custom CodeLab. Customized to match the organization of this textbook, CodeLab provides over 300 short hands-on programming exercises with immediate feedback. Instructor Resources: Test Bank, PowerPoint Lecture Outlines, Solutions to Programming Activities in text, and Answers to the chapter exercises Also available: Java Illuminated: Brief Edition, Third Edition (ISBN-13: 978-1-4496-3202-1). This Brief Edition is suitable for the one-term introductory course.

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. Data Structures and Problem Solving Using Java takes a practical and unique approach to data structures that separates interface from implementation. It is suitable for the second or third programming course. This book provides a practical introduction to data structures with an emphasis on abstract thinking and problem solving, as well as the use of Java. It does this through what remains a unique approach that clearly separates each data structure's interface (how to use a data structure) from its implementation (how to actually program that structure). Parts I (Tour of Java), II (Algorithms and Building Blocks), and III (Applications) lay the groundwork by discussing basic concepts and tools and providing some practical examples, while Part IV (Implementations) focuses on implementation of data structures. This forces the reader to think about the functionality of the data structures before the hash table is implemented. The Fourth Edition features many new updates as well as new exercises.

The Most Important Skill in Computer Science! The field of algorithms and data structures is one of the most important in computer science. You will rarely be invited to a coding interview at Google, Microsoft or Facebook and not be asked questions about it. This is because these companies know how valuable the skills taught are. It doesn't matter if you are into machine learning, ethical hacking, cyber security or enterprise software engineering. You will always need to be able to work with algorithms and data structures. However, this field is also by many considered to be one of the hardest, since it is so abstract and complex. This is mainly due to the style in which it is taught. Most professors in colleges focus on exact mathematical definitions instead of understanding. And while you can't blame them for doing their job, there are better ways to learn about this subject. This book is for everyone who is interested in an intuitive and simple approach to algorithms and data structures. It is for everyone who is frustrated with memorizing dry formal definitions. This bible covers all the formal definitions that are important and necessary but it mainly focuses on breaking complex things down in a simple way. At the end, you will not only know how to formally analyze algorithms but you will also deeply understand what is happening behind the scenes and why things are the way they are. After Reading This Book You Will Have The Following Skills: - Intuitive understanding of algorithms and data structures - Analyzing the runtime complexity of algorithms - Using the Big O notation - Dissecting and analyzing sorting algorithms (Bubble Sort, Merge Sort, Quick Sort...) - Understanding and applying graph theory and related algorithms (BFS, DFS, Kruskal, Dijkstra) - Understanding basic data structures and their time complexities (Linked Lists, Stacks, Heaps, Trees...) - Using self-balancing trees (AVL, B-Tree...) - Understanding and applying hashing and collision resolution Master Algorithms and Data Structure Simply and Intuitively!

Ethics and Technology, 5th Edition, by Herman Tavani introduces students to issues and controversies that comprise the relatively new field of cyberethics. This text examines a wide range of cyberethics issues--from specific issues of moral responsibility that directly affect computer and information technology (IT) professionals to broader social and ethical concerns that affect each of us in our day-to-day lives. The 5th edition shows how modern day controversies created by emerging technologies can be analyzed from the perspective of standard ethical concepts and theories. -- Provided by publisher.

Get up to speed on Scala, the JVM language that offers all the benefits of a modern object model, functional programming, and an advanced type system. Packed with code examples, this comprehensive book shows you how to be productive with the language and ecosystem right away, and explains why Scala is ideal for today's highly scalable, data-centric applications that support concurrency and distribution. This second edition covers recent language features, with new chapters on pattern matching, comprehensions, and advanced functional programming. You'll also learn about Scala's command-line tools, third-party tools, libraries, and language-aware plugins for editors and IDEs. This book is ideal for beginning and advanced Scala developers alike. Program faster with Scala's succinct and flexible syntax Dive into basic and advanced functional programming (FP) techniques Build killer big-data apps, using Scala's functional combinators Use traits for mixin composition and pattern matching for data extraction Learn the sophisticated type system that combines FP and object-oriented programming concepts Explore Scala-specific concurrency tools, including Akka Understand how to develop rich domain-specific languages Learn good design techniques for building scalable and robust Scala applications

Written for the one- to three-term introductory programming course, the fifth edition of Java Illuminated provides learners with an interactive, user-friendly approach to learning the Java programming language. Comprehensive but accessible, the text takes a progressive approach to object-oriented programming, allowing students to build on established skills to develop new and increasingly complex classes. Java Illuminated follows an activity-based active learning approach that ensures student engagement and interest.

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. Note: You are purchasing a standalone product; MyProgrammingLab does not come packaged with this content. If you would like to purchase both the physical text and MyProgrammingLab search for ISBN-10: 0133796302/ISBN-13: 9780133796308. That package includes ISBN-10: 0133776743/ISBN-13: 9780133776744 and ISBN-10:0133831779 /ISBN-13: 9780133831771. MyProgrammingLab is not a self-paced technology and should only be

purchased when required by an instructor. *Starting Out with Java: Early Objects* is intended for use in the Java programming course. It is also suitable for all readers interested in an introduction to the Java programming language. Tony Gaddis's accessible, step-by-step presentation helps beginning students understand the important details necessary to become skilled programmers at an introductory level. Gaddis motivates the study of both programming skills and the Java programming language by presenting all the details needed to understand the "how" and the "why"—but never losing sight of the fact that most beginners struggle with this material. His approach is both gradual and highly accessible, ensuring that students understand the logic behind developing high-quality programs. In *Starting Out with Java: Early Objects*, Gaddis looks at objects—the fundamentals of classes and methods—before covering procedural programming. As with all Gaddis texts, clear and easy-to-read code listings, concise and practical real-world examples, and an abundance of exercises appear in every chapter. MyProgrammingLab for *Starting Out with Java: Early Objects* is a total learning package. MyProgrammingLab is an online homework, tutorial, and assessment program that truly engages students in learning. It helps students better prepare for class, quizzes, and exams—resulting in better performance in the course—and provides educators a dynamic set of tools for gauging individual and class progress. Teaching and Learning Experience This program presents a better teaching and learning experience—for you and your students. Personalize Learning with MyProgrammingLab: Through the power of practice and immediate personalized feedback, MyProgrammingLab helps students fully grasp the logic, semantics, and syntax of programming. Enhance Learning with the Gaddis Approach: Gaddis's accessible approach features clear and easy-to-read code listings, concise real-world examples, and exercises in every chapter. Keep Your Course Current: Content is refreshed to provide the most up-to-date information on new technologies for your course. Support Instructors and Students: Student and instructor resources are available to expand on the topics presented in the text. The end of dramatic exponential growth in single-processor performance marks the end of the dominance of the single microprocessor in computing. The era of sequential computing must give way to a new era in which parallelism is at the forefront. Although important scientific and engineering challenges lie ahead, this is an opportune time for innovation in programming systems and computing architectures. We have already begun to see diversity in computer designs to optimize for such considerations as power and throughput. The next generation of discoveries is likely to require advances at both the hardware and software levels of computing systems. There is no guarantee that we can make parallel computing as common and easy to use as yesterday's sequential single-processor computer systems, but unless we aggressively pursue efforts suggested by the recommendations in this book, it will be "game over" for growth in computing performance. If parallel programming and related software efforts fail to become widespread, the development of exciting new applications that drive the computer industry will stall; if such innovation stalls, many other parts of the economy will follow suit. *The Future of Computing Performance* describes the factors that have led to the future limitations on growth for single processors that are based on complementary metal oxide semiconductor (CMOS) technology. It explores challenges inherent in parallel computing and architecture, including ever-increasing power consumption and the escalated requirements for heat dissipation. The book delineates a research, practice, and education agenda to help overcome these challenges. *The Future of Computing Performance* will guide researchers, manufacturers, and information technology professionals in the right direction for sustainable growth in computer performance, so that we may all enjoy the next level of benefits to society.

Completely revised and updated, *Computer Systems, Fourth Edition* offers a clear, detailed, step-by-step introduction to the central concepts in computer organization, assembly language, and computer architecture. Important Notice: The digital edition of this book is missing some of the images or content found in the physical edition.

*OpenGL® SuperBible, Fifth Edition* is the definitive programmer's guide, tutorial, and reference for the world's leading 3D API for real-time computer graphics, OpenGL 3.3. The best all-around introduction to OpenGL for developers at all levels of experience, it clearly explains both the API and essential associated programming concepts. Readers will find up-to-date, hands-on guidance on all facets of modern OpenGL development, including transformations, texture mapping, shaders, advanced buffers, geometry management, and much more. Fully revised to reflect ARB's latest official specification (3.3), this edition also contains a new start-to-finish tutorial on OpenGL for the iPhone, iPod touch, and iPad. Coverage includes A practical introduction to the essentials of real-time 3D graphics Core OpenGL 3.3 techniques for rendering, transformations, and texturing Writing your own shaders, with examples to get you started Cross-platform OpenGL: Windows (including Windows 7), Mac OS X, GNU/Linux, UNIX, and embedded systems OpenGL programming for iPhone, iPod touch, and iPad: step-by-step guidance and complete example programs Advanced buffer techniques, including full-definition rendering with floating point buffers and textures Fragment operations: controlling the end of the graphics pipeline Advanced shader usage and geometry management A fully updated API reference, now based on the official ARB (Core) OpenGL 3.3 manual pages New bonus materials and sample code on a companion Web site, [www.starstonesoftware.com/OpenGL](http://www.starstonesoftware.com/OpenGL) Part of the OpenGL Technical Library—The official knowledge resource for OpenGL developers The OpenGL Technical Library provides tutorial and reference books for OpenGL. The Library enables programmers to gain a practical understanding of OpenGL and shows them how to unlock its full potential. Originally developed by SGI, the Library continues to evolve under the auspices of the OpenGL Architecture Review Board (ARB) Steering Group (now part of the Khronos Group), an industry consortium responsible for guiding the evolution of OpenGL and related technologies.

Completely revised and updated with the latest version of C++, the new Fifth Edition of *Programming and Problem Solving with C++* provides the clearest introduction to C++, object-oriented programming, and software development available. Renowned author team Nell Dale and Chip Weems are careful to include all topics and guidelines put forth by the ACM/IEEE. A new chapter on Data Structures makes this text ideal for the one- or two-term course. New Software Maintenance Case Studies teach students how to read code in order to debug, alter, or enhance existing class or code segments. Important Notice: The digital edition of this book is missing some of the images or content found in the physical edition

*Foundations of Algorithms, Fifth Edition* offers a well-balanced presentation of algorithm design, complexity analysis of algorithms, and computational complexity. Ideal for any computer science students with a background in college algebra

and discrete structures, the text presents mathematical concepts using standard English and simple notation to maximize accessibility and user-friendliness. Concrete examples, appendices reviewing essential mathematical concepts, and a student-focused approach reinforce theoretical explanations and promote learning and retention. C++ and Java pseudocode help students better understand complex algorithms. A chapter on numerical algorithms includes a review of basic number theory, Euclid's Algorithm for finding the greatest common divisor, a review of modular arithmetic, an algorithm for solving modular linear equations, an algorithm for computing modular powers, and the new polynomial-time algorithm for determining whether a number is prime. The revised and updated Fifth Edition features an all-new chapter on genetic algorithms and genetic programming, including approximate solutions to the traveling salesperson problem, an algorithm for an artificial ant that navigates along a trail of food, and an application to financial trading. With fully updated exercises and examples throughout and improved instructor resources including complete solutions, an Instructor's Manual and PowerPoint lecture outlines, Foundations of Algorithms is an essential text for undergraduate and graduate courses in the design and analysis of algorithms. Key features include: The only text of its kind with a chapter on genetic algorithms Use of C++ and Java pseudocode to help students better understand complex algorithms No calculus background required Numerous clear and student-friendly examples throughout the text Fully updated exercises and examples throughout Improved instructor resources, including complete solutions, an Instructor's Manual, and PowerPoint lecture outlines"

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Artificial intelligence (AI) is a field within computer science that is attempting to build enhanced intelligence into computer systems. This book traces the history of the subject, from the early dreams of eighteenth-century (and earlier) pioneers to the more successful work of today's AI engineers. AI is becoming more and more a part of everyone's life. The technology is already embedded in face-recognizing cameras, speech-recognition software, Internet search engines, and health-care robots, among other applications. The book's many diagrams and easy-to-understand descriptions of AI programs will help the casual reader gain an understanding of how these and other AI systems actually work. Its thorough (but unobtrusive) end-of-chapter notes containing citations to important source materials will be of great use to AI scholars and researchers. This book promises to be the definitive history of a field that has captivated the imaginations of scientists, philosophers, and writers for centuries.

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