

C Programming The Essentials For Engineers And Scientists 1st Edition

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Theory of Computation - Dexter C. Kozen 2006-09-19
This textbook is uniquely written with dual purpose. It cover cores material in the foundations of computing for graduate students in computer science and also provides an introduction to some more advanced topics for those intending further study in the area. This innovative text focuses primarily on computational complexity theory: the classification of computational problems in terms of their inherent complexity. The book contains an invaluable collection of lectures for first-year graduates on the theory of computation. Topics and features include more than 40 lectures for first year graduate students, and a dozen homework sets and exercises.

Essential MATLAB for Scientists and Engineers - Brian D. Hahn 2002

"This completely revised new edition is based on the latest version of MATLAB. New chapters cover handle graphics, graphical user interfaces (GUIs), structures and cell arrays, and importing/exporting data. The chapter on numerical methods now includes a general GUI-driver ODE solver."--Jacket.

Foundations of Computer Science - Alfred V. Aho 1994-10-15

C for Scientists and Engineers - Richard Johnsonbaugh 1996-01-01

Essentials of Software Engineering - Frank Tsui 2011
Computer Architecture/Software Engineering
Guide to HTML, JavaScript and PHP - David R. Brooks 2011-05-16

This book enables readers to quickly develop a working knowledge of HTML, JavaScript and PHP. The text emphasizes a hands-on approach to learning and makes extensive use of examples. A detailed science, engineering, or mathematics background is not required to understand the material, making the book ideally suitable for self-study or an introductory course in programming. Features: describes the creation and use of HTML documents; presents fundamental concepts of client-side and server-side programming languages; examines JavaScript and PHP implementation of arrays, built-in and user-defined methods and functions, math capabilities, and input processing with HTML forms; extends programming fundamentals to include reading and writing server-based files, command-line interfaces, and an introduction to GD graphics; appendices include a brief introduction to using a "pseudocode" approach to organizing solutions to computing problems; includes a Glossary and an extensive set of programming exercises.

Expert C Programming - Peter Van der Linden 1994
Software -- Programming Languages.

Programming for Chemical Engineers Using C, C++, and MATLAB? - Raul Raymond Kapuno 2008

Designed for chemical engineering students and industry professionals, this book shows how to write reusable computer programs. Written in the three languages (C,

C++, and MATLAB), it is accompanied by a CD-ROM featuring source code, executables, figures, and simulations. It also explains each program in detail.
C++ for Engineers and Scientists - Gary J. Bronson 2006
Bronson's second edition makes C++ accessible to first-level engineering students. The book teaches the fundamentals of the C++ language with a gradual refinement of programming skills from procedural to object-oriented. Part One presents procedural programming with an emphasis on modular program design. Part Two, on object-oriented programming, and Part Three, on data structures, are interchangeable to allow for teaching flexibility. In addition, students are introduced to the fundamentals of software engineering with an emphasis on problem-solving techniques, making the text an ideal choice for both one- and two-semester C++ programming courses.

A Book on C - Al Kelley 1990

The authors provide clear examples and thorough explanations of every feature in the C language. They teach C vis-a-vis the UNIX operating system. A reference and tutorial to the C programming language. Annotation copyrighted by Book News, Inc., Portland, OR

C A Software Engineering Approach - Peter A. Darnell 2012-12-06

A highly readable text designed for beginning and intermediate C programmers. While focusing on the programming language, the book emphasises stylistic issues and software engineering principles so as to develop programs that are readable, maintainable, portable, and efficient. The software engineering techniques discussed throughout the text are illustrated in a C interpreter, whose source listing is provided on diskette, and highlighted "bug alerts" offer tips on the common errors made by novice programmers. Can be used as the primary course textbook or as the main reference by programmers intent on learning C.

Programming for Engineers - Aaron R. Bradley 2011-10-25
To learn to program is to be initiated into an entirely new way of thinking about engineering, mathematics, and the world in general. Computation is integral to all modern engineering disciplines, so the better you are at programming, the better you will be in your chosen field. The author departs radically from the typical presentation by teaching concepts and techniques in a rigorous manner rather than listing how to use libraries and functions. He presents pointers in the very first chapter as part of the development of a computational model that facilitates an ab initio presentation of subjects such as function calls, call-by-reference, arrays, the stack, and the heap. The model also allows students to practice the essential skill of memory manipulation throughout the entire course rather than just at the end. As a result, this textbook goes further than is typical for a one-semester course -- abstract data types and linked lists, for example, are covered in depth. The computational model will also serve students in their adventures with programming beyond the course:

instead of falling back on rules, they can think through the model to decide how a new programming concept fits with what they already know. The book is appropriate for undergraduate students of engineering and computer science, and graduate students of other disciplines. It contains many exercises integrated into the main text, and the author has made the source code available online.

C for Engineers and Scientists - Harry H. Cheng 2010

This book focuses on systematic software design approach in C for applications in engineering and science following the latest standard developed by the ANSI C/ISO C Standard Committees called C99.

Fundamentals of Computer Organization and Design - Sivarama P. Dandamudi 2006-05-31

A new advanced textbook/reference providing a comprehensive survey of hardware and software architectural principles and methods of computer systems organization and design. The book is suitable for a first course in computer organization. The style is similar to that of the author's book on assembly language in that it strongly supports self-study by students. This organization facilitates compressed presentation of material. Emphasis is also placed on related concepts to practical designs/chips. Topics: material presentation suitable for self-study; concepts related to practical designs and implementations; extensive examples and figures; details provided on several digital logic simulation packages; free MASM download instructions provided; and end-of-chapter exercises.

Automata and Computability - Dexter C. Kozen 2013-11-11

These are my lecture notes from CS381/481: Automata and Computability Theory, a one-semester senior-level course I have taught at Cornell University for many years. I took this course myself in the fall of 1974 as a first-year Ph.D. student at Cornell from Juris Hartmanis and have been in love with the subject ever since. The course is required for computer science majors at Cornell. It exists in two forms: CS481, an honors version; and CS381, a somewhat gentler paced version. The syllabus is roughly the same, but CS481 goes deeper into the subject, covers more material, and is taught at a more abstract level. Students are encouraged to start off in one or the other, then switch within the first few weeks if they find the other version more suitable to their level of mathematical skill. The purpose of the course is twofold: to introduce computer science students to the rich heritage of models and abstractions that have arisen over the years; and to develop the capacity to form abstractions of their own and reason in terms of them.

C Programming Essentials - K. N. Dey 2010-09

"The book demonstrates key techniques that make C effective and focuses on fundamental concepts for mastery. An introduction to C99 is also provided." -- Resource description page

Essential Java for Scientists and Engineers - Brian D. Hahn 2002

This text serves as an introduction to the programming language Java for scientists and engineers, as well as experienced programmers wishing to learn Java as an additional language. The authors have specifically taken a hands-on approach to get the reader writing and running programs immediately. In addition, the book focuses on how Java, and object-oriented programming, can be used to solve science and engineering problems.

An Introduction to HTML and JavaScript - David R. Brooks 2007-06-30

Dual-use technological writing at its best. This book presents HTML and JavaScript in a way that uniquely meets the needs of students in both engineering and the sciences. The author shows how to create simple client-side applications for scientific and engineering calculations. Complete HTML/JavaScript examples with

science/engineering applications are used throughout to guide the reader comprehensively through the subject. The book gives the reader a sufficient understanding of HTML and JavaScript to write their online applications. This book emphasizes basic programming principles in a modern Web-oriented environment, making it suitable for an introductory programming course for non-computer science majors. It is also ideal for self-study.

Ethical and Social Issues in the Information Age -

Joseph Migga Kizza 2007-07-05

This new edition provides an updated discussion on the ethical and social issues that continue to evolve as computing and information technologies proliferate. It surveys thought-provoking questions about the impact of technology. It shows how changes in information technology influence morality and the law and is a cogent analysis of civil liberties, harassment, and discrimination. In addition, the book explores techniques in electronic crime investigation. This new edition features three new chapters that cover computer network crimes, computer crime investigations, and biometrics.

An Introduction to PHP for Scientists and Engineers -

David R. Brooks 2008-09-29

The best way to become acquainted with a subject is to write a book about it. --Benjamin Disraeli i. Background The purpose of this book is provide an introduction to using a server-side programming language to solve some kinds of computing problems that cannot be solved with a client-side language such as JavaScript. The language is PHP (originally created in 1994 by Danish/Icelandic programmer Rasmus Lerdorf as "Personal Home Page Tools" for dealing with his own web site). The PHP language does not have a formal specification, as C does, for example. It is developed and maintained by a User Group of volunteers and is, essentially, defined by the most recently available free download. Although this might seem to be a shaky foundation on which to make a commitment to learning a programming language, PHP has a very large world-wide base of users and applications, which ensures its role into the foreseeable future. This book should not be considered as a PHP reference source and it does not deal exhaustively even with those elements of the PHP language used in the book. (This should be considered a blessing by the casual programmer.) If you need more information, there is a huge amount of information online about PHP. Hopefully, this book will help you filter this information to focus on solving typical science and engineering problems. An excellent online source for information about PHP is <http://www.php.net/manual/en/index.php>, maintained by the PHP Documentation Group.

Secure Coding in C and C++ - Robert C. Seacord

2005-09-09

"The security of information systems has not improved at a rate consistent with the growth and sophistication of the attacks being made against them. To address this problem, we must improve the underlying strategies and techniques used to create our systems. Specifically, we must build security in from the start, rather than append it as an afterthought. That's the point of Secure Coding in C and C++. In careful detail, this book shows software developers how to build high-quality systems that are less vulnerable to costly and even catastrophic attack. It's a book that every developer should read before the start of any serious project." --Frank Abagnale, author, lecturer, and leading consultant on fraud prevention and secure documents Learn the Root Causes of Software Vulnerabilities and How to Avoid Them Commonly exploited software vulnerabilities are usually caused by avoidable software defects. Having analyzed nearly 18,000 vulnerability reports over the past ten years, the CERT/Coordination Center (CERT/CC) has determined that a relatively small number of root causes account for most of them. This book identifies and

explains these causes and shows the steps that can be taken to prevent exploitation. Moreover, this book encourages programmers to adopt security best practices and develop a security mindset that can help protect software from tomorrow's attacks, not just today's. Drawing on the CERT/CC's reports and conclusions, Robert Seacord systematically identifies the program errors most likely to lead to security breaches, shows how they can be exploited, reviews the potential consequences, and presents secure alternatives. Coverage includes technical detail on how to Improve the overall security of any C/C++ application Thwart buffer overflows and stack-smashing attacks that exploit insecure string manipulation logic Avoid vulnerabilities and security flaws resulting from the incorrect use of dynamic memory management functions Eliminate integer-related problems: integer overflows, sign errors, and truncation errors Correctly use formatted output functions without introducing format-string vulnerabilities Avoid I/O vulnerabilities, including race conditions Secure Coding in C and C++ presents hundreds of examples of secure code, insecure code, and exploits, implemented for Windows and Linux. If you're responsible for creating secure C or C++ software--or for keeping it safe--no other book offers you this much detailed, expert assistance.

Programming with MATLAB for Scientists - Eugeny E. Mikhailov 2018-01-12

This book offers an introduction to the basics of MATLAB programming to scientists and engineers. The author leads with engaging examples to build a working knowledge, specifically geared to those with science and engineering backgrounds. The reader is empowered to model and simulate real systems, as well as present and analyze everyday data sets. In order to achieve those goals, the contents bypass excessive "under the hood" details, and instead gets right down to the essential, practical foundations for successful programming and modeling. Readers will benefit from the following features: Teaches programming to scientists and engineers using a problem-based approach, leading with illustrative and interesting examples. Emphasizes a hands-on approach, with "must know" information and minimal technical details. Utilizes examples from science and engineering to showcase the application of learned concepts on real problems. Showcases modeling of real systems, gradually advancing from simpler to more challenging problems. Highlights the practical uses of data processing and analysis in everyday life.

CUDA for Engineers - Duane Storti 2015-11-02

CUDA for Engineers gives you direct, hands-on engagement with personal, high-performance parallel computing, enabling you to do computations on a gaming-level PC that would have required a supercomputer just a few years ago. The authors introduce the essentials of CUDA C programming clearly and concisely, quickly guiding you from running sample programs to building your own code. Throughout, you'll learn from complete examples you can build, run, and modify, complemented by additional projects that deepen your understanding. All projects are fully developed, with detailed building instructions for all major platforms. Ideal for any scientist, engineer, or student with at least introductory programming experience, this guide assumes no specialized background in GPU-based or parallel computing. In an appendix, the authors also present a refresher on C programming for those who need it. Coverage includes Preparing your computer to run CUDA programs Understanding CUDA's parallelism model and C extensions Transferring data between CPU and GPU Managing timing, profiling, error handling, and debugging Creating 2D grids Interoperating with OpenGL to provide real-time user interactivity Performing basic simulations with differential equations Using stencils to manage related computations across threads Exploiting

CUDA's shared memory capability to enhance performance Interacting with 3D data: slicing, volume rendering, and ray casting Using CUDA libraries Finding more CUDA resources and code Realistic example applications include Visualizing functions in 2D and 3D Solving differential equations while changing initial or boundary conditions Viewing/processing images or image stacks Computing inner products and centroids Solving systems of linear algebraic equations Monte-Carlo computations

C Mathematical Function Handbook - Louis Baker 1992

C source code, algorithms and applications for a wide range of valuable scientific and engineering mathematical functions. Each function is discussed in detail with algorithms, applications, and key refernces. Includes a separate 3 1/2" disk.

Computer Concepts And C Programming : Holistic Approach To Learning C, 2/e - Anami

C Programming for Scientists and Engineers with Applications - Rama Reddy 2009-08-18

C is a favored and widely used programming language, particularly within the fields of science and engineering. C Programming for Scientists and Engineers with Applications guides readers through the fundamental, as well as the advanced concepts, of the C programming language as it applies to solving engineering and scientific problems. Ideal for readers with no prior programming experience, this text provides numerous sample problems and their solutions in the areas of mechanical engineering, electrical engineering, heat transfer, fluid mechanics, physics, chemistry, and more. It begins with a chapter focused on the basic terminology relating to hardware, software, problem definition and solution. From there readers are quickly brought into the key elements of C and will be writing their own code upon completion of Chapter 2. Concepts are then gradually built upon using a strong, structured approach with syntax and semantics presented in an easy-to-understand sentence format. Readers will find C Programming for Scientists and Engineers with Applications to be an engaging, user-friendly introduction to this popular language.

Introduction to Programming with C++ for Engineers - Boguslaw Cyganek 2021-02-08

A complete textbook and reference for engineers to learn the fundamentals of computer programming with modern C++ Introduction to Programming with C++ for Engineers is an original presentation teaching the fundamentals of computer programming and modern C++ to engineers and engineering students. Professor Cyganek, a highly regarded expert in his field, walks users through basics of data structures and algorithms with the help of a core subset of C++ and the Standard Library, progressing to the object-oriented domain and advanced C++ features, computer arithmetic, memory management and essentials of parallel programming, showing with real world examples how to complete tasks. He also guides users through the software development process, good programming practices, not shunning from explaining low-level features and the programming tools. Being a textbook, with the summarizing tables and diagrams the book becomes a highly useful reference for C++ programmers at all levels. Introduction to Programming with C++ for Engineers teaches how to program by: Guiding users from simple techniques with modern C++ and the Standard Library, to more advanced object-oriented design methods and language features Providing meaningful examples that facilitate understanding of the programming techniques and the C++ language constructions Fostering good programming practices which create better professional programmers Minimizing text descriptions, opting instead for comprehensive figures, tables, diagrams, and other explanatory material Granting access to a complementary website that contains example code and useful links to

resources that further improve the reader's coding ability Including test and exam question for the reader's review at the end of each chapter Engineering students, students of other sciences who rely on computer programming, and professionals in various fields will find this book invaluable when learning to program with C++.

Exploring Computer Science with Scheme - Oliver Grillmeyer 2013-04-17

A presentation of the central and basic concepts, techniques, and tools of computer science, with the emphasis on presenting a problem-solving approach and on providing a survey of all of the most important topics covered in degree programmes. Scheme is used throughout as the programming language and the author stresses a functional programming approach to create simple functions so as to obtain the desired programming goal. Such simple functions are easily tested individually, which greatly helps in producing programs that work correctly first time. Throughout, the author aids to writing programs, and makes liberal use of boxes with "Mistakes to Avoid." Programming examples include: * abstracting a problem; * creating pseudo code as an intermediate solution; * top-down and bottom-up design; * building procedural and data abstractions; * writing programs in modules which are easily testable. Numerous exercises help readers test their understanding of the material and develop ideas in greater depth, making this an ideal first course for all students coming to computer science for the first time.

An Introduction to PHP for Scientists and Engineers - David R. Brooks 2009-03-01

The best way to become acquainted with a subject is to write a book about it. –Benjamin Disraeli i. Background The purpose of this book is provide an introduction to using a server-side programming language to solve some kinds of computing problems that cannot be solved with a client-side language such as JavaScript. The language is PHP (originally created in 1994 by Danish/Icelandic programmer Rasmus Lerdorf as "Personal Home Page Tools" for dealing with his own web site). The PHP language does not have a formal specification, as C does, for example. It is developed and maintained by a User Group of volunteers and is, essentially, defined by the most recently available free download. Although this might seem to be a shaky foundation on which to make a commitment to learning a programming language, PHP has a very large world-wide base of users and applications, which ensures its role into the foreseeable future. This book should not be considered as a PHP reference source and it does not deal exhaustively even with those elements of the PHP language used in the book. (This should be considered a blessing by the casual programmer.) If you need more information, there is a huge amount of information online about PHP. Hopefully, this book will help you filter this information to focus on solving typical science and engineering problems. An excellent online source for information about PHP is <http://www.php.net/manual/en/index.php>, maintained by the PHP 1 Documentation Group.

C Programming - Sisir Kumar Jena 2021-12-29

The C programming language is a popular language in industries as well as academics. Since its invention and standardized as ANSI C, several other standards known as C99, C11, and C17 were published with new features in subsequent years. This book covers all the traits of ANSI C and includes new features present in other standards. The content of this book helps a beginner to learn the fundamental concept of the C language. The book contains a step-by-step explanation of every program that allows a learner to understand the syntax and builds a foundation to write similar programs. The explanation clarity, exercises, and illustrations present in this book make it a complete textbook in all aspects. Features: Other than ANSIC, the book explains

the new C standards like C99, C11, and C17. Most basic and easy-to-follow programs are chosen to explain the concepts and their syntax. More emphasis is given to the topics like Functions, Pointers, and Structures. Recursion is emphasized with numerous programming examples and diagrams. A separate chapter on the command-line argument and preprocessors is included that concisely explains their usage. Several real-life figures are taken to explain the concepts of dynamic memory allocation, file handling, and the difference between structure and union. The book contains more than 260 illustrations, more than 200 programs, and exercises at the end of each chapter. This book serves as a textbook for UG/PG courses in science and engineering. The researcher, postgraduate engineers, and embedded software developers can also keep this book as reference material for their fundamental learning.

C Programming: The Essentials for Engineers and Scientists - David R. Brooks 2012-12-06

This text teaches the essentials of C programming, concentrating on what readers need to know in order to produce stand-alone programs and so solve typical scientific and engineering problems. It is a learning-by-doing book, with many examples and exercises, and lays a foundation of scientific programming concepts and techniques that will prove valuable for those who might eventually move on to another language. Written for undergraduates who are familiar with computers and typical applications but are new to programming.

Software Engineering in C - Peter A. Darnell 2012-12-06

The author starts with the premise that C is an excellent language for software engineering projects. The book concentrates on programming style, particularly readability, maintainability, and portability. Documents the proposed ANSI Standard, which is expected to be ratified in 1987. This book is designed as a text for both beginner and intermediate-level programmers.

Python and Matplotlib Essentials for Scientists and Engineers - Matt A Wood 2015-06-01

This book provides an introduction to the core features of the Python programming language and Matplotlib plotting routings for scientists and engineers (or students of either discipline) who want to use Python™ to analyse data, simulate physical processes, and render publication-quality plots. No previous programming experience is needed before reading the first page. Readers will learn the core features of the Python programming language in under a day. They will be able to immediately use Python to implement codes that solve their own problems and make beautiful plots and animations. Python code is extremely fast to prototype, allowing users to achieve results quickly and accurately. The examples within the book are available for download at <http://pythonessentials.com>. Python and Matplotlib Essentials for Scientists and Engineers is accessible for motivated high-school students, but will likely be most useful for undergraduate and graduate students as well as working professionals who have some background with the basic mathematical concepts. This book is intended for technical people who want to get things done.

C Programming for Engineering and Computer Science - H. H. Tan 1999

Fundamentals of the New Artificial Intelligence - Toshinori Munakata 2008-01-01

The book covers the most essential and widely employed material in each area, particularly the material important for real-world applications. Our goal is not to cover every latest progress in the fields, nor to discuss every detail of various techniques that have been developed. New sections/subsections added in this edition are: Simulated Annealing (Section 3.7), Boltzmann Machines (Section 3.8) and Extended Fuzzy if-

then Rules Tables (Sub-section 5.5.3). Also, numerous changes and typographical corrections have been made throughout the manuscript. The Preface to the first edition follows. General scope of the book Artificial intelligence (AI) as a field has undergone rapid growth in diversification and practicality. For the past few decades, the repertoire of AI techniques has evolved and expanded. Scores of newer fields have been added to the traditional symbolic AI. Symbolic AI covers areas such as knowledge-based systems, logical reasoning, symbolic machine learning, search techniques, and natural language processing. The newer fields include neural networks, genetic algorithms or evolutionary computing, fuzzy systems, rough set theory, and chaotic systems.

Computability and Complexity Theory - Steven Homer 2001
This volume introduces materials that are the core knowledge in the theory of computation. The book is self-contained, with a preliminary chapter describing key mathematical concepts and notations and subsequent chapters moving from the qualitative aspects of classical computability theory to the quantitative aspects of complexity theory. Dedicated chapters on undecidability, NP-completeness, and relative computability round off the work, which focuses on the limitations of computability and the distinctions between feasible and intractable. Topics and features:

- *Concise, focused materials cover the most fundamental concepts and results in the field of modern complexity theory, including the theory of NP-completeness, NP-hardness, the polynomial hierarchy, and complete problems for other complexity classes
- *Contains information that otherwise exists only in research literature and presents it in a unified, simplified manner; for example, about complements of complexity classes, search problems, and intermediate problems in NP
- *Provides key mathematical background information, including sections on logic and number theory and algebra
- *Supported by numerous exercises and

supplementary problems for reinforcement and self-study purposes With its accessibility and well-devised organization, this text/reference is an excellent resource and guide for those looking to develop a solid grounding in the theory of computing. Beginning graduates, advanced undergraduates, and professionals involved in theoretical computer science, complexity theory, and computability will find the book an essential and practical learning tool.

Software Reliability Methods - Doron A. Peled 2013-06-29

This book presents current methods for dealing with software reliability, illustrating the advantages and disadvantages of each method. The description of the techniques is intended for a non-expert audience with some minimal technical background. It also describes some advanced techniques, aimed at researchers and practitioners in software engineering. This reference will serve as an introduction to formal methods and techniques and will be a source for learning about various ways to enhance software reliability. Various projects and exercises give readers hands-on experience with the various formal methods and tools.

Modal and Temporal Properties of Processes - Colin Stirling 2013-03-14

In recent years, model checking has become an essential technique for the formal verification of systems. With a clarity of presentation and its many illuminating examples, this book makes this technical material easy to grasp. It is perfectly suited for an advanced undergraduate or graduate class in formal verification and will serve as a valuable resource to practitioners of formal methods.

Programming Embedded Systems - Michael Barr 2006-10-11

Authored by two of the leading authorities in the field, this guide offers readers the knowledge and skills needed to achieve proficiency with embedded software.

C Programming for Electronic Engineers - Keith Jackson 1995