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Web 2.0 and Beyond Paul Anderson 2016-04-19 *Web 2.0 and Beyond: Principles and Technologies* draws on the author's iceberg model of Web 2.0, which places the social Web at the tip of the iceberg underpinned by a framework of technologies and ideas. The author incorporates research from a range of areas, including business, economics, information science, law, media studies, psychology, social informatics and sociology. This multidisciplinary perspective illustrates not only the wide implications of computing but also how other areas interpret what computer science is doing. After an introductory chapter, the book is divided into three sections. The first one discusses the underlying ideas and principles, including user-generated content, the architecture of participation, data on an epic scale, harnessing the power of the crowd, openness and the network effect and Web topology. The second section chronologically covers the main types of Web 2.0 services—blogs, wikis, social networks, media sharing sites, social bookmarking and microblogging. Each chapter in this section looks at how the service is used, how it was developed and the technology involved, important research themes and findings from the literature. The final section presents the technologies and standards that underpin the operation of Web 2.0 and goes beyond this to explore such topics as the Semantic Web, cloud computing and Web Science. Suitable for nonexperts, students and computer scientists, this book provides an accessible and engaging explanation of Web 2.0 and its wider context yet is still grounded in the rigour of computer science. It takes readers through all aspects of Web 2.0, from the development of technologies to current services.

Explorations in Computing John S. Conery 2014-09-24 *An Active Learning Approach to Teaching the Main Ideas in Computing Explorations in Computing: An Introduction to Computer Science and Python Programming* teaches computer science students how to use programming skills to explore fundamental concepts and computational approaches to solving problems. Tbook gives beginning students an introduction to

Cloud Computing Technologies for Smart Agriculture and Healthcare Urmila Shrawankar

2021-12-29 The Cloud is an advanced and fast-growing technology in the current era. The computing paradigm has changed drastically. It provided a new insight into the computing world with new characteristics including on-demand, virtualization, scalability and many more. Utility computing, virtualization and service-oriented architecture (SoA) are the key characteristics of Cloud computing. The Cloud provides distinct IT services over the web on a pay-as-you-go and on-demand basis. Cloud Computing Technologies for Smart Agriculture and Healthcare covers Cloud management and its framework. It also focuses how the Cloud computing framework can be integrated with applications based on agriculture and healthcare. Features: Contains a systematic overview of the state-of-the-art, basic theories, challenges, implementation, and case studies on Cloud technology Discusses of recent research results and future advancement in virtualization technology Focuses on core theories, architectures, and technologies necessary to develop and understand the computing models and its applications Includes a wide range of examples that uses Cloud technology for increasing farm profitability and sustainable production Presents the farming industry with Cloud technology that allows it to aggregate, analyze, and share data across farms and the world Includes Cloud-based electronic health records with privacy and security features Offers suitable IT solutions to the global issues in the domain of agriculture and health care for society This reference book is aimed at undergraduate and post-graduate programs. It will also help research scholars in their research work. This book also benefits like scientists, business innovators, entrepreneurs, professionals, and practitioners.

Computers and Society Lisa C. Kaczmarczyk 2011-12-14 Since computer scientists make decisions every day that have societal context and influence, an understanding of society and computing together should be integrated into computer science education. Showing students what they can do with their computing degree, *Computers and Society: Computing for Good* uses concrete examples and case studies to highlight the positive work of real computing professionals and organizations from around the world. Each chapter profiles a corporation, nonprofit organization, or entrepreneur involved in computing-centric activities that clearly benefit society or the environment, including cultural adaptation in a developing country, cutting-edge medicine and healthcare, educational innovation, endangered species work, and help for overseas voters. The coverage of computing topics spans from social networking to high-performance computing. The diversity of people and activities in these profiles gives students a broad vision of what they can accomplish after graduation. Pedagogical Features Encouraging students to engage actively and critically with the material, the book offers a wealth of pedagogical sections at the end of each chapter. Questions of varying difficulty ask students to apply the material to themselves or their surroundings and to think critically about the material from the perspective of a future computing professional. The text also gives instructors the option to incorporate individual projects, team projects, short projects, and semester-long projects. Other resources for instructors and students are available at www.computers-and-society.com Visit the author's blog at <http://computing4society.blogspot.com>

Big Data Management and Processing Kuan-Ching Li 2017-05-19 From the Foreword: "Big Data Management and Processing is [a] state-of-the-art book that deals with a wide range of topical themes in the field of Big Data. The book, which probes many issues related to this exciting and rapidly growing field, covers processing, management, analytics, and applications... [It] is a very valuable addition to the literature. It will serve as a source of up-to-date research in this continuously developing area. The book also provides an opportunity for researchers to explore the use of advanced computing technologies and their impact on enhancing our capabilities to conduct more sophisticated studies." ---Sartaj Sahni, University of Florida, USA "Big Data Management and Processing covers the latest Big Data research results in processing, analytics, management and applications. Both fundamental insights and representative applications are provided. This book is a timely and valuable resource for students,

researchers and seasoned practitioners in Big Data fields. --Hai Jin, Huazhong University of Science and Technology, China Big Data Management and Processing explores a range of big data related issues and their impact on the design of new computing systems. The twenty-one chapters were carefully selected and feature contributions from several outstanding researchers. The book endeavors to strike a balance between theoretical and practical coverage of innovative problem solving techniques for a range of platforms. It serves as a repository of paradigms, technologies, and applications that target different facets of big data computing systems. The first part of the book explores energy and resource management issues, as well as legal compliance and quality management for Big Data. It covers In-Memory computing and In-Memory data grids, as well as co-scheduling for high performance computing applications. The second part of the book includes comprehensive coverage of Hadoop and Spark, along with security, privacy, and trust challenges and solutions. The latter part of the book covers mining and clustering in Big Data, and includes applications in genomics, hospital big data processing, and vehicular cloud computing. The book also analyzes funding for Big Data projects.

Introduction to Programming and Problem-Solving Using Scala Mark C. Lewis 2016-10-14 Praise for the first edition: "The well-written, comprehensive book...[is] aiming to become a de facto reference for the language and its features and capabilities. The pace is appropriate for beginners; programming concepts are introduced progressively through a range of examples and then used as tools for building applications in various domains, including sophisticated data structures and algorithms...Highly recommended. Students of all levels, faculty, and professionals/practitioners. —D. Papamichail, University of Miami in CHOICE Magazine Mark Lewis' Introduction to the Art of Programming Using Scala was the first textbook to use Scala for introductory CS courses. Fully revised and expanded, the new edition of this popular text has been divided into two books. Introduction to Programming and Problem-Solving Using Scala is designed to be used in first semester college classrooms to teach students beginning programming with Scala. The book focuses on the key topics students need to know in an introductory course, while also highlighting the features that make Scala a great programming language to learn. The book is filled with end-of-chapter projects and exercises, and the authors have also posted a number of different supplements on the book website. Video lectures for each chapter in the book are also available on YouTube. The videos show construction of code from the ground up and this type of "live coding" is invaluable for learning to program, as it allows students into the mind of a more experienced programmer, where they can see the thought processes associated with the development of the code. About the Authors Mark Lewis is a Professor at Trinity University. He teaches a number of different courses, spanning from first semester introductory courses to advanced seminars. His research interests included simulations and modeling, programming languages, and numerical modeling of rings around planets with nearby moons. Lisa Lacher is an Assistant Professor at the University of Houston, Clear Lake with over 25 years of professional software development experience. She teaches a number of different courses spanning from first semester introductory courses to graduate level courses. Her research interests include Computer Science Education, Agile Software Development, Human Computer Interaction and Usability Engineering, as well as Measurement and Empirical Software Engineering.

Object-Oriented, Abstraction, and Data Structures Using Scala Mark C. Lewis 2017-01-06 Praise for the first edition: "The well-written, comprehensive book...[is] aiming to become a de facto reference for the language and its features and capabilities. The pace is appropriate for beginners; programming concepts are introduced progressively through a range of examples and then used as tools for building applications in various domains, including sophisticated data structures and algorithms...Highly recommended. Students of all levels, faculty, and professionals/practitioners. —D. Papamichail, University of Miami in CHOICE Magazine Mark Lewis' Introduction to the Art of Programming Using

Scala was the first textbook to use Scala for introductory CS courses. Fully revised and expanded, the new edition of this popular text has been divided into two books. Object-Orientation, Abstraction, and Data Structures Using Scala, Second Edition is intended to be used as a textbook for a second or third semester course in Computer Science. The Scala programming language provides powerful constructs for expressing both object orientation and abstraction. This book provides students with these tools of object orientation to help them structure solutions to larger, more complex problems, and to expand on their knowledge of abstraction so that they can make their code more powerful and flexible. The book also illustrates key concepts through the creation of data structures, showing how data structures can be written, and the strengths and weaknesses of each one. Libraries that provide the functionality needed to do real programming are also explored in the text, including GUIs, multithreading, and networking. The book is filled with end-of-chapter projects and exercises, and the authors have also posted a number of different supplements on the book website. Video lectures for each chapter in the book are also available on YouTube. The videos show construction of code from the ground up and this type of "live coding" is invaluable for learning to program, as it allows students into the mind of a more experienced programmer, where they can see the thought processes associated with the development of the code. About the Authors Mark Lewis is an Associate Professor at Trinity University. He teaches a number of different courses, spanning from first semester introductory courses to advanced seminars. His research interests included simulations and modeling, programming languages, and numerical modeling of rings around planets with nearby moons. Lisa Lacher is an Assistant Professor at the University of Houston, Clear Lake with over 25 years of professional software development experience. She teaches a number of different courses spanning from first semester introductory courses to graduate level courses. Her research interests include Computer Science Education, Agile Software Development, Human Computer Interaction and Usability Engineering, as well as Measurement and Empirical Software Engineering.

Petascale Computing David A. Bader 2007-12-22 Although the highly anticipated petascale computers of the near future will perform at an order of magnitude faster than today's quickest supercomputer, the scaling up of algorithms and applications for this class of computers remains a tough challenge. From scalable algorithm design for massive concurrency to performance analyses and scientific visualization, Petascale Computing: Algorithms and Applications captures the state of the art in high-performance computing algorithms and applications. Featuring contributions from the world's leading experts in computational science, this edited collection explores the use of petascale computers for solving the most difficult scientific and engineering problems of the current century. Covering a wide range of important topics, the book illustrates how petascale computing can be applied to space and Earth science missions, biological systems, weather prediction, climate science, disasters, black holes, and gamma ray bursts. It details the simulation of multiphysics, cosmological evolution, molecular dynamics, and biomolecules. The book also discusses computational aspects that include the Uintah framework, Enzo code, multithreaded algorithms, petaflops, performance analysis tools, multilevel finite element solvers, finite element code development, Charm++, and the Cactus framework. Supplying petascale tools, programming methodologies, and an eight-page color insert, this volume addresses the challenging problems of developing application codes that can take advantage of the architectural features of the new petascale systems in advance of their first deployment.

Introduction to Programming and Problem-Solving Using Scala, Second Edition Mark C. Lewis 2016-10-14 Praise for the first edition: "The well-written, comprehensive book...[is] aiming to become a de facto reference for the language and its features and capabilities. The pace is appropriate for beginners; programming concepts are introduced progressively through a range of examples and then used as tools for building applications in various domains, including sophisticated data structures and

algorithms...Highly recommended. Students of all levels, faculty, and professionals/practitioners.? —D. Papamichail, University of Miami in CHOICE Magazine ? Mark Lewis'?Introduction to the Art of Programming Using Scala?was the first textbook to use Scala for introductory CS courses. Fully revised and expanded, the new edition of this popular text has been divided into two books. Introduction to Programming and Problem-Solving Using Scala is designed to be used in first semester college classrooms to teach students beginning programming with Scala. The book focuses on the key topics students need to know in an introductory course, while also highlighting the features that make Scala a great programming language to learn. The book is filled with end-of-chapter projects and exercises, and the authors have also posted a number of different supplements on the book website. Video lectures for each chapter in the book are also available on YouTube. The videos show construction of code from the ground up and this type of "live coding" is invaluable for learning to program, as it allows students into the mind of a more experienced programmer, where they can see the thought processes associated with the development of the code. About the Authors Mark Lewis is a Professor at Trinity University. He teaches a number of different courses, spanning from first semester introductory courses to advanced seminars. His research interests included simulations and modeling, programming languages, and numerical modeling of rings around planets with nearby moons.? Lisa Lacher is an Assistant Professor at the University of Houston, Clear Lake with over 25 years of professional software development experience. She teaches a number of different courses spanning from first semester introductory courses to graduate level courses. Her research interests include Computer Science Education, Agile Software Development, Human Computer Interaction and Usability Engineering, as well as Measurement and Empirical Software Engineering.

The Journal of Computing and Society 1990

Computational Intelligent Data Analysis for Sustainable Development Ting Yu 2016-04-19 Going beyond performing simple analyses, researchers involved in the highly dynamic field of computational intelligent data analysis design algorithms that solve increasingly complex data problems in changing environments, including economic, environmental, and social data. Computational Intelligent Data Analysis for Sustainable Development present

Reinventing Technology, Rediscovering Community Philip Agre 1997 This book addresses how computers affect people's everyday lives. Using actual situations and problems that people have encountered with current software applications, this book offers academics ways to examine how new situations are created through computer use. It contains some of the very first papers on very important topics including the AEGIS disaster, the intriguing new world of MUD environments, and community networks, including a study of Community Memory in Berkeley, possibly the world's first community computer system. The first half contains critical studies, in which the authors explain ways of describing real situations where people are already using computers. This situations are often problematic and much more complicated than the scenarios that the designers envisioned when designing the system. The second half of the book contains constructive studies, reporting experiences in trying to build systems in new ways, with a fully developed consciousness of what people need and the interactions between computer systems and social systems.

The End of Error John L. Gustafson 2017-06-26 The Future of Numerical Computing Written by one of the foremost experts in high-performance computing and the inventor of Gustafson's Law, The End of Error: Unum Computing explains a new approach to computer arithmetic: the universal number (unum). The unum encompasses all IEEE floating-point formats as well as fixed-point and exact integer arithmetic. This new number type obtains more accurate answers than floating-point arithmetic yet

uses fewer bits in many cases, saving memory, bandwidth, energy, and power. A Complete Revamp of Computer Arithmetic from the Ground Up Richly illustrated in color, this groundbreaking book represents a fundamental change in how to perform calculations automatically. It illustrates how this novel approach can solve problems that have vexed engineers and scientists for decades, including problems that have been historically limited to serial processing. Suitable for Anyone Using Computers for Calculations The book is accessible to anyone who uses computers for technical calculations, with much of the book only requiring high school math. The author makes the mathematics interesting through numerous analogies. He clearly defines jargon and uses color-coded boxes for mathematical formulas, computer code, important descriptions, and exercises.

Computers and Society Lisa C. Kaczmarczyk 2012-07-03 Since computer scientists make decisions every day that have societal context and influence, an understanding of society and computing together should be integrated into computer science education. Showing students what they can do with their computing degree, *Computers and Society: Computing for Good* uses concrete examples and case studies to highlight the positive work of real computing professionals and organizations from around the world. Each chapter profiles a corporation, nonprofit organization, or entrepreneur involved in computing-centric activities that clearly benefit society or the environment, including cultural adaptation in a developing country, cutting-edge medicine and healthcare, educational innovation, endangered species work, and help for overseas voters. The coverage of computing topics spans from social networking to high-performance computing. The diversity of people and activities in these profiles gives students a broad vision of what they can accomplish after graduation. Pedagogical Features Encouraging students to engage actively and critically with the material, the book offers a wealth of pedagogical sections at the end of each chapter. Questions of varying difficulty ask students to apply the material to themselves or their surroundings and to think critically about the material from the perspective of a future computing professional. The text also gives instructors the option to incorporate individual projects, team projects, short projects, and semester-long projects. Other resources for instructors and students are available at www.computers-and-society.com Visit the author's blog at <http://computing4society.blogspot.com>

Introduction to the Art of Programming Using Scala Mark C. Lewis 2012-11-05 With its flexibility for programming both small and large projects, Scala is an ideal language for teaching beginning programming. Yet there are no textbooks on Scala currently available for the CS1/CS2 levels. *Introduction to the Art of Programming Using Scala* presents many concepts from CS1 and CS2 using a modern, JVM-based language that works we

A Concise Introduction to Programming in Python Mark J. Johnson 2011-12-21 Suitable for newcomers to computer science, *A Concise Introduction to Programming in Python* provides a succinct, yet complete, first course in computer science using the Python programming language. The book features: Short, modular chapters with brief and precise explanations, intended for one class period Early introduction of basic procedural cons

Computation for Humanity Justyna Zander 2018-10-03 The exponential progress and accessibility of computing has vastly increased data flows and revolutionized the practice of science, engineering, and communication. Computing plays a critical role in advancing research across almost every scientific discipline. *Computation for Humanity: Information Technology to Advance Society* is a guide for the creation of services, products, and tools that facilitate, support, and enhance progress of humanity toward more sustainable life. This book: Provides a deep understanding of the practical applications of computation to solve human-machine problems Delivers insight into theoretical approaches in an

accessible manner Provides a comprehensive overview of computational science and engineering applications in selected disciplines Crosses the boundaries between different domains and shows how they interrelate and complement one another Focuses on grand challenges and issues that matter for the future of humanity Shows different perspectives of computational thinking, understanding, and reasoning Provides a basis for scientific discoveries and enables adopting scientific theories and engineering practices from other disciplines Takes a step back to provide a human-related abstraction level that is not ultimately seen in pure technological elaborations/collections The editors provide a collection of numerous computation-related projects that form a foundation from which to cross-pollinate between different disciplines and further extensive collaboration. They present a clear and profound understanding of computing in today's world, and provide fundamental solutions to some of the most pertinent humanity-related problems.

Informatics and the Digital Society Tom J. van Weert 2013-06-05 SECIII-Social, Ethical and Cognitive Issues of Informatics and ICT Welcome to the post-conference book of SECIII, the IFIP Open Conference on Social, Ethical and Cognitive Issues of Informatics and ICT (Information and Communication Technology) which took place from July 22-26, 2002 at the University of Dortmund, Germany, in co-operation with the German computer society (Gesellschaft für Informatik). Unlike most international conferences, those organised within the IFIP education community are active events. This wasn't a dry academic conference - teachers, lecturers and curriculum experts, policy makers, researchers and manufacturers mingled and worked together to explore, reflect and discuss social, ethical and cognitive issues. The added value lies in what they, the participants, took away in new ideas for future research and practice, and in the new networks that were formed, both virtual and real. In addition to Keynote Addresses and Paper Presentations from international authors, there were Provocative Paper sessions, Case Studies, Focussed Debates and Creative Exchange sessions as well as professional Working Groups who debated particular themes. The Focussed Debate sessions helped to stimulate the sense of engagement among conference participants. A Market Place with follow-up Working Groups was a positive highlight and galvanised participants to produce interesting reports. These were presented to the conference on its last day. Cross-fertilisation between the papers generated some surprising and useful cross-referencing and a plethora of social, ethical and cognitive issues emerged in the discussions that followed the paper presentations.

Media, Technology and Society Brian Winston 2002-09-11 Challenging the popular myth of a present-day 'information revolution', Media Technology and Society is essential reading for anyone interested in the social impact of technological change. Winston argues that the development of new media forms, from the telegraph and the telephone to computers, satellite and virtual reality, is the product of a constant play-off between social necessity and suppression: the unwritten law by which new technologies are introduced into society only insofar as their disruptive potential is limited.

The Tao of Computing, Second Edition Henry M. Walker 2012-07-06 Describing both the practical details of interest to students and the high-level concepts and abstractions highlighted by faculty, The Tao of Computing, Second Edition presents a comprehensive introduction to computers and computer technology. This edition updates its popular predecessor with new research exercises and expanded discussion questions. It uses a question-and-answer format to provide thoughtful answers to the many practical questions that students have about computing. Among the questions answered, the book explains: What capabilities computers have in helping people solve problems and what limitations need to be considered Why machines act the way they do What is involved in getting computers to interact with networks The book offers a down-to-earth overview of fundamental computer fluency topics, from the basics of how a computer is organized and an overview of operating systems to a description of how

the Internet works. The second edition describes new technological advances including social media applications and RSS feeds.

Making Music with Computers Bill Manaris 2014-05-19 Teach Your Students How to Use Computing to Explore Powerful and Creative Ideas In the twenty-first century, computers have become indispensable in music making, distribution, performance, and consumption. *Making Music with Computers: Creative Programming in Python* introduces important concepts and skills necessary to generate music with computers. It interweaves computing pedagogy with musical concepts and creative activities, showing students how to integrate the creativity and design of the arts with the mathematical rigor and formality of computer science. The book provides an introduction to creative software development in the Python programming language. It uses innovative music-creation activities to illustrate introductory computer programming concepts, including data types, algorithms, operators, iteration, lists, functions, and classes. The authors also cover GUIs, event-driven programming, big data, sonification, MIDI programming, client-server programming, recursion, fractals, and complex system dynamics. Requiring minimal musical or programming experience, the text is designed for courses in introductory computer science and computing in the arts. It helps students learn computer programming in a creative context and understand how to build computer music applications. Also suitable for self-study, the book shows musicians and digital music enthusiasts how to write music software and create algorithmic music compositions. Web Resource A supplementary website (<http://jythonMusic.org>) provides a music library and other software resources used in the text. The music library is an extension of the jMusic library and incorporates other cross-platform programming tools. The website also offers example course and associated media resources.

Information Technology and Educational Management in the Knowledge Society Arthur Tatnall 2006-03-02 *Information Technology and Educational Management in the Knowledge Society* is an essential reference for both academic and professional researchers in the field of information technology and educational management. Since the mid-1980's, computer assisted educational information systems have been developing in various parts of the world and the knowledge surrounding the development and implementation of these systems has been growing. The papers presented in this volume are the result of an international call for papers addressing the challenges faced by the information technology and education management (ITEM) field in a society where knowledge management is becoming a major issue both in educational and business systems. This state-of-the-art volume presents the proceedings of the 6th International Working Conference on Information Technology in Educational Management, held July 2004 in Spain. The collection will be important not only for information technology and education management experts and researchers, but also for all teachers and administrators interested in this growing field.

The Oxford Handbook of Digital Technology and Society Simeon Yates 2020-06-01 Required reading for anyone interested in the profound relationship between digital technology and society Digital technology has become an undeniable facet of our social lives, defining our governments, communities, and personal identities. Yet with these technologies in ongoing evolution, it is difficult to gauge the full extent of their societal impact, leaving researchers and policy makers with the challenge of staying up-to-date on a field that is constantly in flux. *The Oxford Handbook of Digital Technology and Society* provides students, researchers, and practitioners across the technology and social science sectors with a comprehensive overview of the foundations for understanding the various relationships between digital technology and society. Combining robust computer-aided reviews of current literature from the UK Economic and Social Research Council's commissioned project "Ways of Being in a Digital Age" with newly commissioned chapters, this handbook illustrates the upcoming research questions and

challenges facing the social sciences as they address the societal impacts of digital media and technologies across seven broad categories: citizenship and politics, communities and identities, communication and relationships, health and well-being, economy and sustainability, data and representation, and governance and security. Individual chapters feature important practical and ethical explorations into topics such as technology and the aging, digital literacies, work-home boundary, machines in the workforce, digital censorship and surveillance, big data governance and regulation, and technology in the public sector. The Oxford Handbook of Digital Technology and Society will equip readers with the necessary starting points and provocations in the field so that scholars and policy makers can effectively assess future research, practice, and policy.

Discovering Computer Science Jessen Havill 2020-10-27 "Havill's problem-driven approach introduces algorithmic concepts in context and motivates students with a wide range of interests and backgrounds." -- Janet Davis, Associate Professor and Microsoft Chair of Computer Science, Whitman College "This book looks really great and takes exactly the approach I think should be used for a CS 1 course. I think it really fills a need in the textbook landscape." -- Marie desJardins, Dean of the College of Organizational, Computational, and Information Sciences, Simmons University "Discovering Computer Science is a refreshing departure from introductory programming texts, offering students a much more sincere introduction to the breadth and complexity of this ever-growing field." -- James Deverick, Senior Lecturer, The College of William and Mary "This unique introduction to the science of computing guides students through broad and universal approaches to problem solving in a variety of contexts and their ultimate implementation as computer programs." -- Daniel Kaplan, DeWitt Wallace Professor, Macalester College *Discovering Computer Science: Interdisciplinary Problems, Principles, and Python Programming* is a problem-oriented introduction to computational problem solving and programming in Python, appropriate for a first course for computer science majors, a more targeted disciplinary computing course or, at a slower pace, any introductory computer science course for a general audience. Realizing that an organization around language features only resonates with a narrow audience, this textbook instead connects programming to students' prior interests using a range of authentic problems from the natural and social sciences and the digital humanities. The presentation begins with an introduction to the problem-solving process, contextualizing programming as an essential component. Then, as the book progresses, each chapter guides students through solutions to increasingly complex problems, using a spiral approach to introduce Python language features. The text also places programming in the context of fundamental computer science principles, such as abstraction, efficiency, testing, and algorithmic techniques, offering glimpses of topics that are traditionally put off until later courses. This book contains 30 well-developed independent projects that encourage students to explore questions across disciplinary boundaries, over 750 homework exercises, and 300 integrated reflection questions engage students in problem solving and active reading. The accompanying website — <https://www.discoveringcs.net> — includes more advanced content, solutions to selected exercises, sample code and data files, and pointers for further exploration.

[A Functional Start to Computing with Python](#) Ted Herman 2013-07-26 *A Functional Start to Computing with Python* enables students to quickly learn computing without having to use loops, variables, and object abstractions at the start. Requiring no prior programming experience, the book draws on Python's flexible data types and operations as well as its capacity for defining new functions. Along with the specifics of Python, the text covers important concepts of computing, including software engineering motivation, algorithms behind syntax rules, advanced functional programming ideas, and, briefly, finite state machines. Taking a student-friendly, interactive approach to teach computing, the book addresses more difficult concepts and abstractions later in the text. The author presents ample explanations of data types, operators, and expressions. He also describes comprehensions—the

powerful specifications of lists and dictionaries—before introducing loops and variables. This approach helps students better understand assignment syntax and iteration by giving them a mental model of sophisticated data first. Web Resource The book's supplementary website at <http://functionalfirstpython.com/> provides many ancillaries, including: Interactive flashcards on Python language elements Links to extra support for each chapter Unit testing and programming exercises An interactive Python stepper tool Chapter-by-chapter points Material for lectures

The End of Error John L. Gustafson 2017-06-26 The Future of Numerical Computing Written by one of the foremost experts in high-performance computing and the inventor of Gustafson's Law, *The End of Error: Unum Computing* explains a new approach to computer arithmetic: the universal number (unum). The unum encompasses all IEEE floating-point formats as well as fixed-point and exact integer arithmetic. This new number type obtains more accurate answers than floating-point arithmetic yet uses fewer bits in many cases, saving memory, bandwidth, energy, and power. A Complete Revamp of Computer Arithmetic from the Ground Up Richly illustrated in color, this groundbreaking book represents a fundamental change in how to perform calculations automatically. It illustrates how this novel approach can solve problems that have vexed engineers and scientists for decades, including problems that have been historically limited to serial processing. Suitable for Anyone Using Computers for Calculations The book is accessible to anyone who uses computers for technical calculations, with much of the book only requiring high school math. The author makes the mathematics interesting through numerous analogies. He clearly defines jargon and uses color-coded boxes for mathematical formulas, computer code, important descriptions, and exercises.

Computational Thinking for the Modern Problem Solver David D. Riley 2014-03-27 Through examples and analogies, *Computational Thinking for the Modern Problem Solver* introduces computational thinking as part of an introductory computing course and shows how computer science concepts are applicable to other fields. It keeps the material accessible and relevant to noncomputer science majors. With numerous color figures, this classroom-tested book focuses on both foundational computer science concepts and engineering topics. It covers abstraction, algorithms, logic, graph theory, social issues of software, and numeric modeling as well as execution control, problem-solving strategies, testing, and data encoding and organizing. The text also discusses fundamental concepts of programming, including variables and assignment, sequential execution, selection, repetition, control abstraction, data organization, and concurrency. The authors present the algorithms using language-independent notation.

Computer Systems Architecture Aharon Yadin 2016-08-03 *Computer Systems Architecture* provides IT professionals and students with the necessary understanding of computer hardware. It addresses the ongoing issues related to computer hardware and discusses the solutions supplied by the industry. The book describes trends in computing solutions that led to the current available infrastructures, tracing the initial need for computers to recent concepts such as the Internet of Things. It covers computers' data representation, explains how computer architecture and its underlying meaning changed over the years, and examines the implementations and performance enhancements of the central processing unit (CPU). It then discusses the organization, hierarchy, and performance considerations of computer memory as applied by the operating system and illustrates how cache memory significantly improves performance. The author proceeds to explore the bus system, algorithms for ensuring data integrity, input and output (I/O) components, methods for performing I/O, various aspects relevant to software engineering, and nonvolatile storage devices, such as hard drives and technologies for enhancing performance and reliability. He also describes virtualization and cloud computing and the emergence of software-based systems' architectures. Accessible to software engineers and developers as well as

students in IT disciplines, this book enhances readers' understanding of the hardware infrastructure used in software engineering projects. It enables readers to better optimize system usage by focusing on the principles used in hardware systems design and the methods for enhancing performance.

High-Performance Computing in Finance M. A. H. Dempster 2018-02-21 High-Performance Computing (HPC) delivers higher computational performance to solve problems in science, engineering and finance. There are various HPC resources available for different needs, ranging from cloud computing- that can be used without much expertise and expense - to more tailored hardware, such as Field-Programmable Gate Arrays (FPGAs) or D-Wave's quantum computer systems. High-Performance Computing in Finance is the first book that provides a state-of-the-art introduction to HPC for finance, capturing both academically and practically relevant problems.

Internet of Things Qusay F. Hassan 2017-12-15 Internet of Things: Challenges, Advances, and Applications provides a comprehensive introduction to IoT, related technologies, and common issues in the adoption of IoT on a large scale. It surveys recent technological advances and novel solutions for challenges in the IoT environment. Moreover, it provides detailed discussion of the utilization of IoT and its underlying technologies in critical application areas, such as smart grids, healthcare, insurance, and the automotive industry. The chapters of this book are authored by several international researchers and industry experts. This book is composed of 18 self-contained chapters that can be read, based on interest. Features: Introduces IoT, including its history, common definitions, underlying technologies, and challenges Discusses technological advances in IoT and implementation considerations Proposes novel solutions for common implementation issues Explores critical application domains, including large-scale electric power distribution networks, smart water and gas grids, healthcare and e-Health applications, and the insurance and automotive industries The book is an excellent reference for researchers and post-graduate students working in the area of IoT, or related areas. It also targets IT professionals interested in gaining deeper knowledge of IoT, its challenges, and application areas.

Cybersecurity Henrique M. D. Santos 2022-04-28 Cybersecurity: A Practical Engineering Approach introduces the implementation of a secure cyber architecture, beginning with the identification of security risks. It then builds solutions to mitigate risks by considering the technological justification of the solutions as well as their efficiency. The process follows an engineering process model. Each module builds on a subset of the risks, discussing the knowledge necessary to approach a solution, followed by the security control architecture design and the implementation. The modular approach allows students to focus on more manageable problems, making the learning process simpler and more attractive.

A Concise Introduction to Data Structures using Java Mark J. Johnson 2013-11-18 A student-friendly text, A Concise Introduction to Data Structures Using Java takes a developmental approach, starting with simpler concepts first and then building toward greater complexity. Important topics, such as linked lists, are introduced gradually and revisited with increasing depth. More code and guidance are provided at the beginning, allowing students time to adapt to Java while also beginning to learn data structures. As students develop fluency in Java, less code is provided and more algorithms are outlined in pseudocode. The text is designed to support a second course in computer science with an emphasis on elementary data structures. The clear, concise explanations encourage students to read and engage with the material, while partial implementations of most data structures give instructors the flexibility to develop some methods as examples and assign others as exercises. The book also supplies an introductory chapter on Java basics that allows students who are unfamiliar with Java to quickly get up to speed. The book helps students become familiar with how to use, design, implement, and analyze data structures, an important step on the path to becoming skilled software developers.

Fundamentals of Dependable Computing for Software Engineers John Knight 2012-01-12

Fundamentals of Dependable Computing for Software Engineers presents the essential elements of computer system dependability. The book describes a comprehensive dependability-engineering process and explains the roles of software and software engineers in computer system dependability. Readers will learn: Why dependability matters What it means for a system to be dependable How to build a dependable software system How to assess whether a software system is adequately dependable The author focuses on the actions needed to reduce the rate of failure to an acceptable level, covering material essential for engineers developing systems with extreme consequences of failure, such as safety-critical systems, security-critical systems, and critical infrastructure systems. The text explores the systems engineering aspects of dependability and provides a framework for engineers to reason and make decisions about software and its dependability. It also offers a comprehensive approach to achieve software dependability and includes a bibliography of the most relevant literature. Emphasizing the software engineering elements of dependability, this book helps software and computer engineers in fields requiring ultra-high levels of dependability, such as avionics, medical devices, automotive electronics, weapon systems, and advanced information systems, construct software systems that are dependable and within budget and time constraints.

The Information Society: Innovation, Legitimacy, Ethics and Democracy In Honor of Professor Jacques Berleur s.j. Philippe Goujon 2007-11-15 This volume honors the professional life of Jacques Berleur. He is known for his extensive work within the IFIP community to expose the nature of the ethical dilemmas of a society increasingly reliant on complex ICT infrastructures, to raise awareness of the social challenges this poses, and to influence action compatible with the ethical values of western democracy.

Green Computing and Predictive Analytics for Healthcare Sourav Banerjee 2020-12-10 Green Computing and Predictive Analytics for Healthcare excavates the rudimentary concepts of Green Computing, Big Data and the Internet of Things along with the latest research development in the domain of healthcare. It also covers various applications and case studies in the field of computer science with state-of-the-art tools and technologies. The rapid growth of the population is a challenging issue in maintaining and monitoring various experiences of quality of service in healthcare. The coherent usage of these limited resources in connection with optimum energy consumption has been becoming more important. The major healthcare nodes are gradually becoming Internet of Things-enabled, and sensors, work data and the involvement of networking are creating smart campuses and smart houses. The book includes chapters on the Internet of Things and Big Data technologies. Features: Biomedical data monitoring under the Internet of Things Environment data sensing and analyzing Big data analytics and clustering Machine learning techniques for sudden cardiac death prediction Robust brain tissue segmentation Energy-efficient and green Internet of Things for healthcare applications Blockchain technology for the healthcare Internet of Things Advanced healthcare for domestic medical tourism system Edge computing for data analytics This book on Green Computing and Predictive Analytics for Healthcare aims to promote and facilitate the exchange of research knowledge and findings across different disciplines on the design and investigation of healthcare data analytics. It can also be used as a textbook for a master's course in biomedical engineering. This book will also present new methods for medical data evaluation and the diagnosis of different diseases to improve quality-of-life in general and for better integration of Internet of Things into society. Dr. Sourav Banerjee is an Assistant Professor at the Department of Computer Science and Engineering of Kalyani Government Engineering College, Kalyani, West Bengal, India. His research interests include Big Data, Cloud Computing, Distributed Computing and Mobile Communications. Dr. Chinmay Chakraborty is an Assistant Professor at the Department of Electronics and Communication Engineering, Birla Institute of Technology, Mesra, India. His main research interests include the

Internet of Medical Things, WBAN, Wireless Networks, Telemedicine, m-Health/e-Health and Medical Imaging. Dr. Kousik Dasgupta is an Assistant Professor at the Department of Computer Science and Engineering, Kalyani Government Engineering College, India. His research interests include Computer Vision, AI/ML, Cloud Computing, Big Data and Security.

The Tao of Computing, Second Edition Henry M. Walker 2012-07-06 Describing both the practical details of interest to students and the high-level concepts and abstractions highlighted by faculty, The Tao of Computing, Second Edition presents a comprehensive introduction to computers and computer technology. This edition updates its popular predecessor with new research exercises and expanded discussion questions. It uses a question-and-answer format to provide thoughtful answers to the many practical questions that students have about computing. Among the questions answered, the book explains: What capabilities computers have in helping people solve problems and what limitations need to be considered Why machines act the way they do What is involved in getting computers to interact with networks The book offers a down-to-earth overview of fundamental computer fluency topics, from the basics of how a computer is organized and an overview of operating systems to a description of how the Internet works. The second edition describes new technological advances including social media applications and RSS feeds.

Mathematical and Algorithmic Foundations of the Internet Fabrizio Luccio 2011-07-06 To truly understand how the Internet and Web are organized and function requires knowledge of mathematics and computation theory. Mathematical and Algorithmic Foundations of the Internet introduces the concepts and methods upon which computer networks rely and explores their applications to the Internet and Web. The book offers a unique approach to mathematical and algorithmic concepts, demonstrating their universality by presenting ideas and examples from various fields, including literature, history, and art. Progressing from fundamental concepts to more specific topics and applications, the text covers computational complexity and randomness, networks and graphs, parallel and distributed computing, and search engines. While the mathematical treatment is rigorous, it is presented at a level that can be grasped by readers with an elementary mathematical background. The authors also present a lighter side to this complex subject by illustrating how many of the mathematical concepts have counterparts in everyday life. The book provides in-depth coverage of the mathematical prerequisites and assembles a complete presentation of how computer networks function. It is a useful resource for anyone interested in the inner functioning, design, and organization of the Internet.

Start Programming Using HTML, CSS, and JavaScript Iztok Fajfar 2015-10-14 A Beginner's Guide to Computer Programming Start Programming Using HTML, CSS, and JavaScript is a manual for undergraduate students in engineering and the natural sciences to discover how computer programming works. Using a dialog format between two students and a professor, the text teaches students how the mainstream web languages HTML, CSS, and JavaScript interact and how to harness their capabilities in practical settings. Each chapter focuses on a specific theme supported by a gradual development of engaging worked examples of live web documents and applications using the three languages. Students can follow most of the examples and experiments using any modern browser and plain text editor. A practical homework problem is included at the end of every chapter and then is discussed at the beginning of the next chapter. In addition, a related keywords list helps students review key topics. By focusing on important established principles and concrete examples, this introductory book shows students how to write cleaner and more easily maintainable code. It augments the basic language syntax and rules with contents and structure while keeping the material simple and manageable.

Information Systems Efreem G. Mallach 2015-08-18 Most information systems textbooks overwhelm business students with overly technical information they may not need in their careers. Information Systems: What Every Business Student Needs to Know takes a new approach to the required information systems course for business majors. For each topic covered, the text highlights key "Take-Aways" that alert

Technology in People Services Marcos Leiderman 1993 This volume documents the Second International Conference on Human Services Information Technology Applications (HUSITA-2), held in New Brunswick, New Jersey, June 1991. Following the keynote presentations are introduced sections covering health care/mental health, aging/disabilities/rehabilitation, substance abuse, family/children, community applications, instruction/education, government support for computerization, expert systems and their applications, administration/management, and ethics and societal issues. Includes a glossary of terms. Also published as *Computers in Human Services*, v.9, nos.1/2/3/4, 1993. Annotation copyright by Book News, Inc., Portland, OR