Fog Computing And Its Role In The Internet Of Things

The Cloud Computing Book **The Computing Universe** Measuring the Business Value of Cloud Computing Quantum Computing for the Quantum Curious **Green Computing and Its Applications The Green Computing Book** *Biologically-Inspired Computing for the Arts: Scientific Data through Graphics* **Worldwide Computing and Its Applications - WWCA'98 Approximate Computing and its Impact on Accuracy, Reliability and Fault-Tolerance Human-Inspired Computing and its Applications Soft Computing and Its Applications** Current Trends in High Performance Computing and Its Applications **Cloud Computing** *Soft Computing and Its Applications, Volume Two* **Programmed Inequality The Biometric Computing** *Knowledge Computing and Its Applications The Physics of Computing* **The Amazing World of Quantum Computing On Computing** *Frontiers of Engineering Quantum Computing from the Ground Up Soft Computing and Its Applications, Volume One* **Computer Science and its Applications** The Elements of Computing Systems **Computing the News Quantum Computing Since Democritus Guide to Cloud Computing** *Quantum Computing for Babies* **Worldwide Computing and Its Applications** *The Fourth International Conference/Exhibition on High-Performance Computing in the Asia-Pacific Region, Beijing, China, May 14-17, 2000* Quantum Computing for Computer Scientists **Communities of Computing The Tao of Computing, Second Edition** *Computers Ltd* **Data Privacy and Trust in Cloud Computing** *The Basics of Cloud Computing Classical and Quantum Computing* **Theory of Reversible Computing Beyond Calculation**

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Beyond Calculation Jun 26 2019 In March 1997, the Association for Computing Machinery celebrated the fiftieth anniversary of the electronic computer. Computers are everywhere: in our cars, our homes, our supermarkets, at the office, and at the local hospital. But as the contributors to this volume make clear, the scientific, social and economic impact of computers is only now beginning to be felt. These sixteen invited essays on the future of computing take on a dazzling variety of topics, with opinions from such experts as Gordon Bell, Sherry Turkle, Edsger W. Dijkstra, Paul Abraham, Donald Norman, Franz Alt, and David Gelernter. This brilliantly eclectic collection will fascinate everybody with an interest in computers and where they are leading us.

Computer Science and its Applications Nov 11 2020 The 6th FTRA International Conference on Computer Science and its Applications (CSA-14) will be held in Guam, USA, Dec. 17 - 19, 2014. CSA-14 presents a comprehensive conference focused on the various aspects of advances in engineering systems in computer science, and applications, including ubiquitous computing, U-Health care system, Big Data, UI/UX for human-centric computing, Computing Service, Bioinformatics and Bio-Inspired Computing and will show recent advances on various aspects of computing technology, Ubiquitous Computing Services and its application.

Approximate Computing and its Impact on Accuracy, Reliability and Fault-Tolerance Feb 24 2022 This book introduces the concept of approximate computing for software and hardware designs and its impact on the reliability of embedded systems. It presents approximate computing methods and proposes approximate fault tolerance techniques applied to programmable hardware and embedded software to provide reliability at low computational costs. The book also presents fault tolerance techniques based on approximate computing, thus presenting how approximate computing can be applied to safety-critical systems.

The Computing Universe Oct 03 2022 This exciting and accessible book takes us on a journey from the early days of computers to the cutting-edge research of the present day that will shape computing in the coming decades. It introduces a fascinating cast of dreamers and inventors who brought these great technological developments into every corner of the modern world, and will open up the universe of computing to anyone who has ever wondered where his or her smartphone came from.

Worldwide Computing and Its Applications - WWCA'98 Mar 28 2022 This book constitutes the refereed proceedings of the Second International Conference on Worldwide Computing and Its Applications, WWCA'98, held in Tsukuba, Japan, in March 1998. This volume presents 14 invited and survey papers together with 20 papers selected by the conference committee. The volume is divided into topical sections on distributed objects, distributed componentware, distributed systems platforms, Internet technology, mobile computing, interculture technology, collaborative media, collaborative

support, information discovery and retrieval, novel network applications.

The Biometric Computing Jul 20 2021 "The Biometric Computing: Recognition & Registration" presents introduction of biometrics along with detailed analysis for identification and recognition methods. This book forms the required platform for understanding biometric computing and its implementation for securing target system. It also provides the comprehensive analysis on algorithms, architectures and interdisciplinary connection of biometric computing along with detailed case-studies for newborns and resolution spaces. The strength of this book is its unique approach starting with how biometric computing works to research paradigms and gradually moves towards its advancement. This book is divided into three parts that comprises basic fundamentals and definitions, algorithms and methodologies, and futuristic research and case studies. Features: A clear view to the fundamentals of Biometric Computing Identification and recognition approach for different human characteristics Different methodologies and algorithms for human identification using biometrics traits such as face, Iris, fingerprint, palm print, voiceprint etc. Interdisciplinary connection of biometric computing with the fields like deep neural network, artificial intelligence, Internet of Biometric Things, low resolution face recognition etc. This book is an edited volume by prominent invited researchers and practitioners around the globe in the field of biometrics, describes the fundamental and recent advancement in biometric recognition and registration. This book is a perfect research handbook for young practitioners who are intending to carry out their research in the field of Biometric Computing and will be used by industry professionals, graduate and researcher students in the field of computer science and engineering.

Quantum Computing for Babies Jun 06 2020 "Quantum Computing for Babies is a colorfully simple introduction to the magical world of quantum computers. Babies (and grownups!) will discover the difference between bits and qubits and how quantum computers will change our future"--

Communities of Computing Feb 01 2020 Communities of Computing is the first book-length history of the Association for Computing Machinery (ACM), founded in 1947 and with a membership today of 100,000 worldwide. It profiles ACM's notable SIGs, active chapters, and individual members, setting ACM's history into a rich social and political context. The book's 12 core chapters are organized into three thematic sections. "Defining the Discipline" examines the 1960s and 1970s when the field of computer science was taking form at the National Science Foundation, Stanford University, and through ACM's notable efforts in education and curriculum standards. "Broadening the Profession" looks outward into the wider society as ACM engaged with social and political issues - and as members struggled with balancing a focus on scientific issues and awareness of the wider world. Chapters examine the social turbulence surrounding the Vietnam War, debates about the women's movement, efforts for computing and community education, and international issues including professionalization and the Cold War. "Expanding Research Frontiers" profiles three areas of research activity where ACM members and ACM itself shaped notable advances in computing, including computer graphics, computer security, and hypertext. Featuring insightful profiles of notable ACM leaders, such as Edmund Berkeley, George Forsythe, Jean Sammet, Peter Denning, and Kelly Gotlieb, and honest assessments of controversial episodes, the volume deals with compelling and complex issues involving ACM and computing. It is not a narrow organizational history of ACM committees and SIGS, although much information about them is given. All chapters are original works of research. Many chapters draw on archival records of ACM's headquarters, ACM SIGs, and ACM leaders. This volume makes a permanent contribution to documenting the history of ACM and understanding its central role in the history of computing.

Current Trends in High Performance Computing and Its Applications Nov 23 2021 A large international conference on High Performance Computing and its - plications was held in Shanghai, China, August 8–10, 2004. It served as a forum to present current work by researchers and software developers from around the world as well as to highlight activities in the high performance computing area. It aimed to bring together research scientists, application - oneers,andsoftwaredeveloperstodiscussproblemsandsolutionsandtoid- tify new issues in this area. The conference focused on the design and analysis of high performance computing algorithms, tools, and platforms and their s- enti?c, engineering, medical, and industrial applications. It drew about 150 participants from Canada, China, Germany, India, Iran, Japan, Mexico, S- gapore, South Korea, the United Kingdom, and the United States of America. More than 170 papers were received on a variety of subjects in modern high performance computing and its applications, such as numerical and software algorithm design and analysis, grid computing advance, adaptive and par- lel algorithm development, distributing debugging tools, computational grid and network environment design, computer simulation and visualization, and computational language study and their applications to science, engineering, and medicine. This book contains ninety papers that are representative in these subjects. It serves as an excellent research reference for graduate s- dents, scientists, and engineers who work with high performance computing for problems arising in science, engineering, and medicine. This conference would not have been possible without the support of a number of organizations and agencies and the assistance of many people.

Human-Inspired Computing and its Applications Jan 26 2022 The two-volume set LNAI 8856 and LNAI 8857 constitutes the proceedings of the 13th Mexican International Conference on Artificial Intelligence, MICAI 2014, held in Tuxtla, Mexico, in November 2014. The total of 87 papers plus 1 invited talk presented in these proceedings were carefully reviewed and selected from 348 submissions. The first volume deals with advances in human-inspired computing and its applications. It contains 44 papers structured into seven sections: natural language processing, natural language processing applications, opinion mining, sentiment analysis, and social network applications, computer vision, image processing, logic, reasoning, and multi-agent systems, and intelligent tutoring systems. The second volume deals with advances in nature-inspired computation and machine learning and contains also 44 papers structured into eight sections: genetic and evolutionary algorithms, neural networks, machine learning, machine learning applications to audio and text, data mining,

fuzzy logic, robotics, planning, and scheduling, and biomedical applications.

Theory of Reversible Computing Jul 28 2019 This book describes reversible computing from the standpoint of the theory of automata and computing. It investigates how reversibility can be effectively utilized in computing. A reversible computing system is a "backward deterministic" system such that every state of the system has at most one predecessor. Although its definition is very simple, it is closely related to physical reversibility, one of the fundamental microscopic laws of Nature. Authored by the leading scientist on the subject, this book serves as a valuable reference work for anyone working in reversible computation or in automata theory in general. This work deals with various reversible computing models at several different levels, which range from the microscopic to the macroscopic, and aims to clarify how computation can be carried out efficiently and elegantly in these reversible computing models. Because the construction methods are often unique and different from those in the traditional methods, these computing models as well as the design methods provide new insights for future computing systems. Organized bottom-up, the book starts with the lowest scale of reversible logic elements and circuits made from them. This is followed by reversible Turing machines, the most basic computationally universal machines, and some other types of reversible automata such as reversible multi-head automata and reversible counter machines. The text concludes with reversible cellular automata for massively parallel spatiotemporal computation. In order to help the reader have a clear understanding of each model, the presentations of all different models follow a similar pattern: the model is given in full detail, a short informal discussion is held on the role of different elements of the model, and an example with illustrations follows each model.

Soft Computing and Its Applications Dec 25 2021 This two-volume set explains the primary tools of soft computing as well as provides an abundance of working examples and detailed design studies. The books start with coverage of fuzzy sets and fuzzy logic and their various approaches to fuzzy reasoning and go on to discuss several advanced features of soft computing and hybrid methodologies. Toge

Green Computing and Its Applications Jun 30 2022 Green computing is the emerging practice of using computing and information technology resources more efficiently while maintaining or improving overall performance. The most common technologies include classification and clustering which are very much in use to predict data. These algorithms also pave the way for overcoming the challenges we face in daily life. Huge data sets are classified and clustered to find out the accurate result. The accuracy and error rate are also calculated for regression, classification and clustering to find out the actual result. The applications include fraud detection, image processing, medical diagnosis, predicting weather etc. Going further, the applications have been increasing in different areas and fields. This book is intended for industrial and academic researchers, scientists and engineers in information technology, green computing, data science, and machine and deep learning.

Biologically-Inspired Computing for the Arts: Scientific Data through Graphics Apr 28 2022 "This book comprises a collection of authors' individual approaches to the relationship between nature, science, and art created with the use of computers, discussing issues related to the use of visual language in communication about biologically-inspired scientific data, visual literacy in science, and application of practitioner's approach"--Provided by publisher.

The Fourth International Conference/Exhibition on High-Performance Computing in the Asia-Pacific Region, Beijing, China, May 14-17, 2000 Apr 04 2020

The Amazing World of Quantum Computing Apr 16 2021 This book discusses the application of quantum mechanics to computing. It explains the fundamental concepts of quantum mechanics and then goes on to discuss various elements of mathematics required for quantum computing. Quantum cryptography, waves and Fourier analysis, measuring quantum systems, comparison to classical mechanics, quantum gates, and important algorithms in quantum computing are among the topics covered. The book offers a valuable resource for graduate and senior undergraduate students in STEM (science, technology, engineering, and mathematics) fields with an interest in designing quantum algorithms. Readers are expected to have a firm grasp of linear algebra and some familiarity with Fourier analysis.

Measuring the Business Value of Cloud Computing Sep 02 2022 The importance of demonstrating the value achieved from IT investments is long established in the Computer Science (CS) and Information Systems (IS) literature. However, emerging technologies such as the ever-changing complex area of cloud computing present new challenges and opportunities for demonstrating how IT investments lead to business value. Recent reviews of extant literature highlights the need for multi-disciplinary research. This research should explore and further develops the conceptualization of value in cloud computing research. In addition, there is a need for research which investigates how IT value manifests itself across the chain of service provision and in inter-organizational scenarios. This open access book will review the state of the art from an IS, Computer Science and Accounting perspective, will introduce and discuss the main techniques for measuring business value for cloud computing in a variety of scenarios, and illustrate these with mini-case studies.

Quantum Computing Since Democritus Aug 09 2020 Takes students and researchers on a tour through some of the deepest ideas of maths, computer science and physics.

Quantum Computing from the Ground Up Jan 14 2021 Quantum computing, the application of quantum mechanics to information, represents a fundamental break from classical information and promises to dramatically increase a computer's power. This text teaches quantum computing from the ground up, providing a tutorial that includes the necessary mathematics, computer science and physics.

Classical and Quantum Computing Aug 28 2019 This is a self-contained, systematic and comprehensive introduction to all the subjects and techniques important in scientific computing. The style and presentation are readily accessible to undergraduates and graduates. A large number of examples, accompanied by complete C++ and Java code wherever possible, cover every topic.

The Green Computing Book May 30 2022 State-of-the-Art Approaches to Advance the Large-Scale Green Computing Movement Edited by one of the founders and lead investigator of the Green500 list, The Green Computing Book: Tackling Energy Efficiency at Large Scale explores seminal research in large-scale green computing. It begins with low-level, hardware-based approaches and then traverses up the software stack with increasingly higher-level, software-based approaches. In the first chapter, the IBM Blue Gene team illustrates how to improve the energy efficiency of a supercomputer by an order of magnitude without any system performance loss in parallelizable applications. The next few chapters explain how to enhance the energy efficiency of a large-scale computing system via compiler-directed energy optimizations, an adaptive run-time system, and a general prediction performance framework. The book then explores the interactions between energy management and reliability and describes storage system organization that maximizes energy efficiency and reliability. It also addresses the need for coordinated power control across different layers and covers demand response policies in computing centers. The final chapter assesses the impact of servers on data center costs.

Cloud Computing Oct 23 2021 This book will enable you to: understand the different types of Cloud and know which is the right one for your business have realistic expectations of what a Cloud service can give you, and enable you to manage it in the way that suits your business minimise potential disruption by successfully managing the risks and threats make appropriate changes to your business in order to seize opportunities offered by Cloud set up an effective governance system and benefit from the consequential cost savings and reductions in expenditure understand the legal implications of international data protection and privacy laws, and protect your business against falling foul of such laws know how Cloud can benefit your business continuity and disaster recovery planning.

The Tao of Computing, Second Edition Jan 02 2020 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.

Computers Ltd Dec 01 2019 David Harel explains and illustrates one of the most fundamental, yet under-exposed facets of computers - their inherent limitations.

Quantum Computing for Computer Scientists Mar 04 2020 The multidisciplinary field of quantum computing strives to exploit some of the uncanny aspects of quantum mechanics to expand our computational horizons. Quantum Computing for Computer Scientists takes readers on a tour of this fascinating area of cutting-edge research. Written in an accessible yet rigorous fashion, this book employs ideas and techniques familiar to every student of computer science. The reader is not expected to have any advanced mathematics or physics background. After presenting the necessary prerequisites, the material is organized to look at different aspects of quantum computing from the specific standpoint of computer science. There are chapters on computer architecture, algorithms, programming languages, theoretical computer science, cryptography, information theory, and hardware. The text has step-by-step examples, more than two hundred exercises with solutions, and programming drills that bring the ideas of quantum computing alive for today's computer science students and researchers.

On Computing Mar 16 2021 A proposal that computing is not merely a form of engineering but a scientific domain on a par with the physical, life, and social sciences. Computing is not simply about hardware or software, or calculation or applications. Computing, writes Paul Rosenbloom, is an exciting and diverse, yet remarkably coherent, scientific enterprise that is highly multidisciplinary yet maintains a unique core of its own. In On Computing, Rosenbloom proposes that computing is a great scientific domain on a par with the physical, life, and social sciences. Rosenbloom introduces a relational approach for understanding computing, conceptualizing it in terms of forms of interaction and implementation, to reveal the hidden structures and connections among its disciplines. He argues for the continuing vitality of computing, surveying the leading edge in computing's combination with other domains, from biocomputing and brain-computer interfaces to crowdsourcing and virtual humans to robots and the intermingling of the real and the virtual. He explores forms of higher order coherence, or macrostructures, over complex computing topics and organizations. Finally, he examines the very notion of a great scientific domain in philosophical terms, honing his argument that computing should be considered the fourth great scientific domain. With On Computing, Rosenbloom, a key architect of the founding of University of Southern California's Institute for Creative Technologies and former Deputy Director of USC's Information Sciences Institute, offers a broader perspective on what computing is and what it can become.

Frontiers of Engineering Feb 12 2021 This volume presents papers on the topics covered at the National Academy of Engineering's 2018 US Frontiers of Engineering Symposium. Every year the symposium brings together 100 outstanding young leaders in engineering to share their cutting-edge research and innovations in selected areas. The 2018 symposium was held September 5-7 and hosted by MIT Lincoln Laboratory in Lexington, Massachusetts. The intent of this book is to convey the excitement of this unique meeting and to highlight innovative developments in engineering research and technical work.

Computing the News Sep 09 2020 Faced with a full-blown crisis, a growing number of journalists are engaging in

seemingly unjournalistic practices such as creating and maintaining databases, handling algorithms, or designing online applications. "Data journalists" claim that these approaches help the profession demonstrate greater objectivity and fulfill its democratic mission. In their view, computational methods enable journalists to better inform their readers, more closely monitor those in power, and offer deeper analysis. In Computing the News, Sylvain Parasie examines how data journalists and news organizations have navigated the tensions between traditional journalistic values and new technologies. He traces the history of journalistic hopes for computing technology and contextualizes the surge of data journalism in the twenty-first century. By importing computational techniques and ways of knowing new to journalism, news organizations have come to depend on a broader array of human and nonhuman actors. Parasie draws on extensive fieldwork in the United States and France, including interviews with journalists and data scientists as well as a behind-the-scenes look at several acclaimed projects in both countries. Ultimately, he argues, fulfilling the promise of data journalism requires the renewal of journalistic standards and ethics. Offering an in-depth analysis of how computing has become part of the daily practices of journalists, this book proposes ways for journalism to evolve in order to serve democratic societies.

Worldwide Computing and Its Applications May 06 2020 This book constitutes the strictly refereed post-conference proceedings of the International Conference on Worldwide Computing and Its Applications, WWCA'97, held in Tsukuba, Japan, in March 1997. The volume presents 15 revised full papers selected from 50 submissions as well as 15 revised invited papers by leading researchers in this emerging area and two keynotes. The papers are organized in topical sections on distributed programming languages and systems, distributed object environments, cooperative computation, collaboration support Systems, collaborative media, novel distributed applications, Internet and protocols, distributed system platforms, mobile computing, and application gateways.

Guide to Cloud Computing Jul 08 2020 This book describes the landscape of cloud computing from first principles, leading the reader step-by-step through the process of building and configuring a cloud environment. The book not only considers the technologies for designing and creating cloud computing platforms, but also the business models and frameworks in real-world implementation of cloud platforms. Emphasis is placed on "learning by doing," and readers are encouraged to experiment with a range of different tools and approaches. Topics and features: includes review questions, hands-on exercises, study activities and discussion topics throughout the text; demonstrates the approaches used to build cloud computing infrastructures; reviews the social, economic, and political aspects of the on-going growth in cloud computing use; discusses legal and security concerns in cloud computing; examines techniques for the appraisal of financial investment into cloud computing; identifies areas for further research within this rapidly-moving field.

Soft Computing and Its Applications, Volume Two Sep 21 2021 This is volume 2 of the two-volume Soft Computing and Its Applications. This volume discusses several advanced features of soft computing and hybrid methodologies. This new book essentially contains the advanced features of soft computing and different hybrid methodologies for soft computing. The book contains an abundance of examples and detailed design studies. The tool soft computing can be a landmark paradigm of computation with cognition that directly or indirectly tries to replicate the rationality of human beings. The book explains several advanced features of soft computing, such as cognitive maps, complex valued fuzzy sets and fuzzy logic, quantum fuzzy sets and quantum fuzzy logic, and rough sets and hybrid methods that combine neural net fuzzy logic and genetic algorithms. The book contains several real-life applications to present the utility and potential of soft computing. The book: • Discusses the present state of art of soft computing • Includes the existing application areas of soft computing • Presents original research contributions • Discusses the future scope of work in soft computing The book is unique in that it bridges the gap between theory and practice, and it presents several experimental results on synthetic data and real-life data. The book provides a unified platform for applied scientists and engineers in different fields and industries for the application of soft computing tools in many diverse domains of engineering. This book can be used as a textbook and/or reference book by undergraduate and postgraduate students of many different engineering branches, such as electrical engineering, control engineering, electronics and communication engineering, computer sciences, and information sciences.

The Physics of Computing May 18 2021 The Physics of Computing gives a foundational view of the physical principles underlying computers. Performance, power, thermal behavior, and reliability are all harder and harder to achieve as transistors shrink to nanometer scales. This book describes the physics of computing at all levels of abstraction from single gates to complete computer systems. It can be used as a course for juniors or seniors in computer engineering and electrical engineering, and can also be used to teach students in other scientific disciplines important concepts in computing. For electrical engineering, the book provides the fundamentals of computing that link core concepts to computing. For computer science, it provides foundations of key challenges such as power consumption, performance, and thermal. The book can also be used as a technical reference by professionals. Links fundamental physics to the key challenges in computer design, including memory wall, power wall, reliability Provides all of the background necessary to understand the physical underpinnings of key computing concepts Covers all the major physical phenomena in computing from transistors to systems, including logic, interconnect, memory, clocking, I/O

Programmed Inequality Aug 21 2021 This "sobering tale of the real consequences of gender bias" explores how Britain lost its early dominance in computing by systematically discriminating against its most qualified workers: women (Harvard Magazine) In 1944, Britain led the world in electronic computing. By 1974, the British computer industry was all but extinct. What happened in the intervening thirty years holds lessons for all postindustrial superpowers. As Britain struggled to use technology to retain its global power, the nation's inability to manage its technical labor force hobbled its transition into the information age. In Programmed Inequality, Mar Hicks explores the story of labor feminization and gendered technocracy that undercut British efforts to computerize. That failure sprang from the government's systematic neglect of its largest

trained technical workforce simply because they were women. Women were a hidden engine of growth in high technology from World War II to the 1960s. As computing experienced a gender flip, becoming male-identified in the 1960s and 1970s, labor problems grew into structural ones and gender discrimination caused the nation's largest computer user—the civil service and sprawling public sector—to make decisions that were disastrous for the British computer industry and the nation as a whole. Drawing on recently opened government files, personal interviews, and the archives of major British computer companies, Programmed Inequality takes aim at the fiction of technological meritocracy. Hicks explains why, even today, possessing technical skill is not enough to ensure that women will rise to the top in science and technology fields. Programmed Inequality shows how the disappearance of women from the field had grave macroeconomic consequences for Britain, and why the United States risks repeating those errors in the twenty-first century.

The Cloud Computing Book Nov 04 2022 This latest textbook from bestselling author, Douglas E. Comer, is a class-tested book providing a comprehensive introduction to cloud computing. Focusing on concepts and principles, rather than commercial offerings by cloud providers and vendors, The Cloud Computing Book: The Future of Computing Explained gives readers a complete picture of the advantages and growth of cloud computing, cloud infrastructure, virtualization, automation and orchestration, and cloud-native software design. The book explains real and virtual data center facilities, including computation (e.g., servers, hypervisors, Virtual Machines, and containers), networks (e.g., leaf-spine architecture, VLANs, and VxLAN), and storage mechanisms (e.g., SAN, NAS, and object storage). Chapters on automation and orchestration cover the conceptual organization of systems that automate software deployment and scaling. Chapters on cloud-native software cover parallelism, microservices, MapReduce, controller-based designs, and serverless computing. Although it focuses on concepts and principles, the book uses popular technologies in examples, including Docker containers and Kubernetes. Final chapters explain security in a cloud environment and the use of models to help control the complexity involved in designing software for the cloud. The text is suitable for a one-semester course for software engineers who want to understand cloud, and for IT managers moving an organization's computing to the cloud.

Quantum Computing for the Quantum Curious Aug 01 2022 This open access book makes quantum computing more accessible than ever before. A fast-growing field at the intersection of physics and computer science, quantum computing promises to have revolutionary capabilities far surpassing "classical" computation. Getting a grip on the science behind the hype can be tough: at its heart lies quantum mechanics, whose enigmatic concepts can be imposing for the novice. This classroom-tested textbook uses simple language, minimal math, and plenty of examples to explain the three key principles behind quantum computers: superposition, quantum measurement, and entanglement. It then goes on to explain how this quantum world opens up a whole new paradigm of computing. The book bridges the gap between popular science articles and advanced textbooks by making key ideas accessible with just high school physics as a prerequisite. Each unit is broken down into sections labelled by difficulty level, allowing the course to be tailored to the student's experience of math and abstract reasoning. Problem sets and simulation-based labs of various levels reinforce the concepts described in the text and give the reader hands-on experience running quantum programs. This book can thus be used at the high school level after the AP or IB exams, in an extracurricular club, or as an independent project resource to give students a taste of what quantum computing is really about. At the college level, it can be used as a supplementary text to enhance a variety of courses in science and computing, or as a self-study guide for students who want to get ahead. Additionally, readers in business, finance, or industry will find it a quick and useful primer on the science behind computing's future.

The Basics of Cloud Computing Sep 29 2019 As part of the Syngress Basics series, The Basics of Cloud Computing provides readers with an overview of the cloud and how to implement cloud computing in their organizations. Cloud computing continues to grow in popularity, and while many people hear the term and use it in conversation, many are confused by it or unaware of what it really means. This book helps readers understand what the cloud is and how to work with it, even if it isn't a part of their day-to-day responsibility. Authors Derrick Rountree and Ileana Castrillo explains the concepts of cloud computing in practical terms, helping readers understand how to leverage cloud services and provide value to their businesses through moving information to the cloud. The book will be presented as an introduction to the cloud, and reference will be made in the introduction to other Syngress cloud titles for readers who want to delve more deeply into the topic. This book gives readers a conceptual understanding and a framework for moving forward with cloud computing, as opposed to competing and related titles, which seek to be comprehensive guides to the cloud. Provides a sound understanding of the cloud and how it works Describes both cloud deployment models and cloud services models, so you can make the best decisions for deployment Presents tips for selecting the best cloud services providers

Soft Computing and Its Applications, Volume One Dec 13 2020 This is volume 1 of the two-volume set Soft Computing and Its Applications. This volume explains the primary tools of soft computing as well as provides an abundance of working examples and detailed design studies. The book starts with coverage of fuzzy sets and fuzzy logic and their various approaches to fuzzy reasoning. Precisely speaking, this book provides a platform for handling different kinds of uncertainties of real-life problems. It introduces the reader to the topic of rough sets. This book's companion volume, Volume 2: Fuzzy Reasoning and Fuzzy Control, will move forward from here to discuss several advanced features of soft computing and application methodologies. This new book: • Discusses the present state of art of soft computing •Includes the existing application areas of soft computing • Presents original research contributions • Discusses the future scope of work in soft computing The book is unique in that it bridges the gap between theory and practice, and it presents several experimental results on synthetic data and real-life data. The book provides a unified platform for applied scientists and engineers in different fields and industries for the application of soft computing tools in many diverse domains of engineering.

Data Privacy and Trust in Cloud Computing Oct 30 2019 This open access book brings together perspectives from

multiple disciplines including psychology, law, IS, and computer science on data privacy and trust in the cloud. Cloud technology has fueled rapid, dramatic technological change, enabling a level of connectivity that has never been seen before in human history. However, this brave new world comes with problems. Several high-profile cases over the last few years have demonstrated cloud computing's uneasy relationship with data security and trust. This volume explores the numerous technological, process and regulatory solutions presented in academic literature as mechanisms for building trust in the cloud, including GDPR in Europe. The massive acceleration of digital adoption resulting from the COVID-19 pandemic is introducing new and significant security and privacy threats and concerns. Against this backdrop, this book provides a timely reference and organising framework for considering how we will assure privacy and build trust in such a hyper-connected digitally dependent world. This book presents a framework for assurance and accountability in the cloud and reviews the literature on trust, data privacy and protection, and ethics in cloud computing.

The Elements of Computing Systems Oct 11 2020 This title gives students an integrated and rigorous picture of applied computer science, as it comes to play in the construction of a simple yet powerful computer system.

Knowledge Computing and Its Applications Jun 18 2021 This book provides a major forum for the technical advancement of knowledge management and its applications across diversified domains. Pursuing an interdisciplinary approach, it focuses on methods used to identify and acquire valid, potentially useful knowledge sources. Managing the gathered knowledge and applying it to multiple domains including health care, social networks, data mining, recommender systems, image processing, pattern recognition and predictions using machine learning techniques is the major strength of this book. Effective knowledge management has become a key to the success of business organizations, and can offer a substantial competitive edge. So as to be accessible to all scholars, this book combines the core ideas of knowledge management and its applications in numerous domains, illustrated in case studies. The techniques and concepts proposed here can be extended in future to accommodate changing business organizations' needs as well as practitioners' innovative ideas.