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Distributed Computing - David Peleg
2000-01-01

Gives a thorough exposition of network spanners and other locality-preserving network representations such as sparse covers and partitions.

Distributed Computing - Yoram Moses
2015-10-03

This book constitutes the proceedings of the 29th International Symposium on Distributed Computing, DISC 2015, held in Tokyo, Japan, in October 2015. The 42 full papers and 14 short papers presented in this volume were carefully reviewed and selected from 143 submissions. The papers feature original contributions to theory, design, implementation, modeling, analysis, or application of distributed systems and networks.

Do-All Computing in Distributed Systems - Chryssis Georgiou
2010-02-12

This book studies algorithmic issues associated with cooperative execution of multiple independent tasks by distributed computing agents including partitionable networks. It provides the most significant

algorithmic solution developed and available today for do-all computing for distributed systems (including partitionable networks), and is the first monograph that deals with do-all computing for distributed systems. The book is structured to meet the needs of a professional audience composed of researchers and practitioners in industry. This volume is also suitable for graduate-level students in computer science.

Elements of Distributed Computing - Vijay K. Garg 2002-05-23

A lucid and up-to-date introduction to the fundamentals of distributed computing systems As distributed systems become increasingly available, the need for a fundamental discussion of the subject has grown. Designed for first-year graduate students and advanced undergraduates as well as practicing computer engineers seeking a solid grounding in the subject, this well-organized text covers the fundamental concepts in distributed computing systems such as time, state, simultaneity, order, knowledge, failure, and agreement in

distributed systems. Departing from the focus on shared memory and synchronous systems commonly taken by other texts, this is the first useful reference based on an asynchronous model of distributed computing, the most widely used in academia and industry. The emphasis of the book is on developing general mechanisms that can be applied to a variety of problems. Its examples-clocks, locks, cameras, sensors, controllers, slicers, and synchronizers-have been carefully chosen so that they are fundamental and yet useful in practical contexts. The text's advantages include: Emphasizes general mechanisms that can be applied to a variety of problems Uses a simple induction-based technique to prove correctness of all algorithms Includes a variety of exercises at the end of each chapter Contains material that has been extensively class tested Gives instructor flexibility in choosing appropriate balance between practice and theory of distributed computing

On the Move to Meaningful Internet Systems: OTM 2011 - Robert Meersman 2011-11-09

The two-volume set LNCS 7044 and 7045 constitutes the refereed proceedings of three confederated international conferences: Cooperative Information Systems (CoopIS 2011), Distributed Objects and Applications - Secure Virtual Infrastructures (DOA-SVI 2011), and Ontologies, DataBases and Applications of SEmantics (ODBASE 2011) held as part of OTM 2011 in October 2011 in Hersonissos on the island of Crete, Greece. The 55 revised full papers presented were carefully reviewed and selected from a total of 141 submissions. The 28 papers included in the second volume constitute the proceedings of DOA-SVI 2011 with 15 full papers organized in topical sections on performance measurement and optimization,

instrumentation, monitoring, and provisioning, quality of service, security and privacy, and models and methods, and ODBASE 2011 with 9 full papers organized in topical sections on acquisition of semantic information, use of semantic information, and reuse of semantic information and 4 short papers.

Recent Advances in Information and Communication Technology 2019 -

Pongsarun Boonyopakorn 2019-05-11

This book presents the latest research on computer recognition systems. Over the last few years, computer scientists, engineers and users have been confronted with rapid changes in computer interfaces and in the abilities of the machines and the services available. And this is just the beginning: based on recent research findings, we can expect more significant advances and challenges in the next decade. Achievements in the area of artificial intelligence have made an important major contribution to these developments: Machine learning, natural language processing, speech recognition, image and video processing are just some of the major research and engineering directions that have made autonomous driving, language assistants, automatic translation and answering systems as well as other innovative applications such as more human-oriented interfaces possible. Those developments also reflect economic changes in the world, which are increasingly dominated by the needs of enhanced globalization, international cooperation (including its competitive aspects) and emerging global problems.

Distributed Computing - Hagit Attiya 2004-03-25

* Comprehensive introduction to the fundamental results in the mathematical foundations of distributed computing * Accompanied by supporting material, such as

lecture notes and solutions for selected exercises * Each chapter ends with bibliographical notes and a set of exercises * Covers the fundamental models, issues and techniques, and features some of the more advanced topics

Distributed System Design - Jie Wu
2017-12-14

Future requirements for computing speed, system reliability, and cost-effectiveness entail the development of alternative computers to replace the traditional von Neumann organization. As computing networks come into being, one of the latest dreams is now possible - distributed computing. Distributed computing brings transparent access to as much computer power and data as the user needs for accomplishing any given task - simultaneously achieving high performance and reliability. The subject of distributed computing is diverse, and many researchers are investigating various issues concerning the structure of hardware and the design of distributed software. Distributed System Design defines a distributed system as one that looks to its users like an ordinary system, but runs on a set of autonomous processing elements (PEs) where each PE has a separate physical memory space and the message transmission delay is not negligible. With close cooperation among these PEs, the system supports an arbitrary number of processes and dynamic extensions. Distributed System Design outlines the main motivations for building a distributed system, including: inherently distributed applications performance/cost resource sharing flexibility and extendibility availability and fault tolerance scalability Presenting basic concepts, problems, and possible solutions, this reference serves graduate students in distributed system design as well as

computer professionals analyzing and designing distributed/open/parallel systems. Chapters discuss: the scope of distributed computing systems general distributed programming languages and a CSP-like distributed control description language (DCDL) expressing parallelism, interprocess communication and synchronization, and fault-tolerant design two approaches describing a distributed system: the time-space view and the interleaving view mutual exclusion and related issues, including election, bidding, and self-stabilization prevention and detection of deadlock reliability, safety, and security as well as various methods of handling node, communication, Byzantine, and software faults efficient interprocessor communication mechanisms as well as these mechanisms without specific constraints, such as adaptiveness, deadlock-freedom, and fault-tolerance virtual channels and virtual networks load distribution problems synchronization of access to shared data while supporting a high degree of concurrency

Distributed Computing - Ajay D. Kshemkalyani 2011-03-03

Designing distributed computing systems is a complex process requiring a solid understanding of the design problems and the theoretical and practical aspects of their solutions. This comprehensive textbook covers the fundamental principles and models underlying the theory, algorithms and systems aspects of distributed computing. Broad and detailed coverage of the theory is balanced with practical systems-related issues such as mutual exclusion, deadlock detection, authentication, and failure recovery. Algorithms are carefully selected, lucidly presented, and described without complex proofs. Simple

explanations and illustrations are used to elucidate the algorithms. Important emerging topics such as peer-to-peer networks and network security are also considered. With vital algorithms, numerous illustrations, examples and homework problems, this textbook is suitable for advanced undergraduate and graduate students of electrical and computer engineering and computer science. Practitioners in data networking and sensor networks will also find this a valuable resource. Additional resources are available online at www.cambridge.org/9780521876346.

Computing and Combinatorics - Tandy Warnow 2003-08-06

The refereed proceedings of the 9th Annual International Computing and Combinatorics Conference, COCOON 2003, held in Big Sky, MT, USA in July 2003. The 52 revised full papers presented together with 3 invited contributions were carefully reviewed and selected from 114 submissions. The papers are organized in topical sections on computational geometry, computational biology, computability and complexity theory, graph theory and graph algorithms, automata and Petri net theory, distributed computing, Web-based computing, scheduling, graph drawing, and fixed-parameter complexity theory.

Intelligent Distributed Computing, Systems and Applications - Costin Badica 2008-08-25

This book represents the peer-reviewed proceedings of the Second International Symposium on Intelligent Distributed Computing – IDC 2008 held in Catania, Italy during September 18-19, 2008. The 35 contributions in this book address many topics related to intelligent and distributed computing, systems and applications, including: adaptivity and learning; agents and multi-agent systems; argumentation;

auctions; case-based reasoning; collaborative systems; data structures; distributed algorithms; formal modeling and verification; genetic and immune algorithms; grid computing; information extraction, annotation and integration; network and security protocols; mobile and ubiquitous computing; ontologies and metadata; P2P computing; planning; recommender systems; rules; semantic Web; services and processes; trust and social computing; virtual organizations; wireless networks; XML technologies.

Distributed Systems - Ratan K. Ghosh 2023-02-22

Distributed Systems Comprehensive textbook resource on distributed systems—integrates foundational topics with advanced topics of contemporary importance within the field Distributed Systems: Theory and Applications is organized around three layers of abstractions: networks, middleware tools, and application framework. It presents data consistency models suited for requirements of innovative distributed shared memory applications. The book also focuses on distributed processing of big data, representation of distributed knowledge and management of distributed intelligence via distributed agents. To aid in understanding how these concepts apply to real-world situations, the work presents a case study on building a P2P Integrated E-Learning system. Downloadable lecture slides are included to help professors and instructors convey key concepts to their students. Additional topics discussed in Distributed Systems: Theory and Applications include: Network issues and high-level communication tools Software tools for implementations of distributed middleware. Data sharing across distributed components through

publish and subscribe-based message diffusion, gossip protocol, P2P architecture and distributed shared memory. Consensus, distributed coordination, and advanced middleware for building large distributed applications Distributed data and knowledge management Autonomy in distributed systems, multi-agent architecture Trust in distributed systems, distributed ledger, Blockchain and related technologies. Researchers, industry professionals, and students in the fields of science, technology, and medicine will be able to use Distributed Systems: Theory and Applications as a comprehensive textbook resource for understanding distributed systems, the specifics behind the modern elements which relate to them, and their practical applications.

Numerical and Evolutionary

Optimization 2018 - Adriana Lara
2019-11-19

This book was established after the 6th International Workshop on Numerical and Evolutionary Optimization (NEO), representing a collection of papers on the intersection of the two research areas covered at this workshop: numerical optimization and evolutionary search techniques. While focusing on the design of fast and reliable methods lying across these two paradigms, the resulting techniques are strongly applicable to a broad class of real-world problems, such as pattern recognition, routing, energy, lines of production, prediction, and modeling, among others. This volume is intended to serve as a useful reference for mathematicians, engineers, and computer scientists to explore current issues and solutions emerging from these mathematical and computational methods and their applications.

Distributed Computing - Yehuda Afek

2013-10-04

This book constitutes the proceedings of the 27th International Symposium on Distributed Computing, DISC 2013, held in Jerusalem, Israel, in October 2013. The 27 full papers presented in this volume were carefully reviewed and selected from 142 submissions; 16 brief announcements are also included. The papers are organized in topical sections named: graph distributed algorithms; topology, leader election, and spanning trees; software transactional memory; shared memory executions; shared memory and storage; gossip and rumor; shared memory tasks and data structures; routing; radio networks and the SINR model; crypto, trust, and influence; and networking.

Pattern Recognition and Data Analysis with Applications - Deepak Gupta

This book covers latest advancements in the areas of machine learning, computer vision, pattern recognition, computational learning theory, big data analytics, network intelligence, signal processing and their applications in real world. The topics covered in machine learning involves feature extraction, variants of support vector machine (SVM), extreme learning machine (ELM), artificial neural network (ANN) and other areas in machine learning. The mathematical analysis of computer vision and pattern recognition involves the use of geometric techniques, scene understanding and modelling from video, 3D object recognition, localization and tracking, medical image analysis and so on. Computational learning theory involves different kinds of learning like incremental, online, reinforcement, manifold, multi-task, semi-supervised, etc. Further, it covers the real-time challenges involved while processing big data analytics and stream processing with the integration of smart data

computing services and interconnectivity. Additionally, it covers the recent developments to network intelligence for analyzing the network information and thereby adapting the algorithms dynamically to improve the efficiency. In the last, it includes the progress in signal processing to process the normal and abnormal categories of real-world signals, for instance signals generated from IoT devices, smart systems, speech, videos, etc., and involves biomedical signal processing: electrocardiogram (ECG), electroencephalogram (EEG), magnetoencephalography (MEG) and electromyogram (EMG).

Guide to Reliable Distributed Systems

- Amy Elser 2012-01-15

This book describes the key concepts, principles and implementation options for creating high-assurance cloud computing solutions. The guide starts with a broad technical overview and basic introduction to cloud computing, looking at the overall architecture of the cloud, client systems, the modern Internet and cloud computing data centers. It then delves into the core challenges of showing how reliability and fault-tolerance can be abstracted, how the resulting questions can be solved, and how the solutions can be leveraged to create a wide range of practical cloud applications. The author's style is practical, and the guide should be readily understandable without any special background. Concrete examples are often drawn from real-world settings to illustrate key insights. Appendices show how the most important reliability models can be formalized, describe the API of the Isis2 platform, and offer more than 80 problems at varying levels of difficulty.

Advances in Digital Technologies - J. Mizera-Pietraszko 2016-04-13

The use of digital information and web technologies is now essential to all our lives on a daily basis. In particular, web technologies that enable easy access to digital information in all its forms and regardless of the user's purpose are extremely important. This book presents papers from the 7th International Conference on Applications of Digital Information and Web Technologies (ICADIWT 2016), held in Keelung City, Taiwan, in March 2016. The conference, which has been organized since 2008, is aimed at building the infrastructure necessary for the large-scale development of web technologies, and attracts participants from many countries who attend the conference to demonstrate and discuss their research findings. The 19 full papers presented at the conference have been arranged into 5 sections: networking; fuzzy systems; intelligent information systems; data communication and protection; and cloud computing. Subjects covered fall under areas such as Internet communication, technologies and software; digital communication software and networks; the Internet of things; databases and applications; and many more. The book will be of interest to all those whose work involves the application of digital information and web technologies.

Bio-Inspired Optimization in Fog and Edge Computing Environments

- Punit Gupta 2023-01-20

A new era of complexity science is emerging, in which nature- and bio-inspired principles are being applied to provide solutions. At the same time, the complexity of systems is increasing due to such models like the Internet of Things (IoT) and fog computing. Will complexity science, applying the principles of nature, be able to tackle the challenges posed

by highly complex networked systems? Bio-Inspired Optimization in Fog and Edge Computing: Principles, Algorithms, and Systems is an attempt to answer this question. It presents innovative, bio-inspired solutions for fog and edge computing and highlights the role of machine learning and informatics. Nature- or biological-inspired techniques are successful tools to understand and analyze a collective behavior. As this book demonstrates, algorithms, and mechanisms of self-organization of complex natural systems have been used to solve optimization problems, particularly in complex systems that are adaptive, ever-evolving, and distributed in nature. The chapters look at ways of enhancing to enhance the performance of fog networks in real-world applications using nature-based optimization techniques. They discuss challenges and provide solutions to the concerns of security, privacy, and power consumption in cloud data center nodes and fog computing networks. The book also examines how: The existing fog and edge architecture is used to provide solutions to future challenges. A geographical information system (GIS) can be used with fog computing to help users in an urban region access prime healthcare. An optimization framework helps in cloud resource management. Fog computing can improve the quality, quantity, long-term viability, and cost-effectiveness in agricultural production. Virtualization can support fog computing, increase resources to be allocated, and be applied to different network layers. The combination of fog computing and IoT or cloud computing can help healthcare workers predict and analyze diseases in patients.

Distributed Computing and Internet Technology - Dang Van Hung 2020-01-01

This book constitutes the proceedings of the 16th International Conference on Distributed Computing and Internet Technology, ICDCIT 2020, held in Bhubaneswar, India, in January 2020. The 20 full and 3 short papers presented in this volume were carefully reviewed and selected from 110 submissions. In addition, the book included 6 invited papers. The contributions were organized in topical sections named: invited talks; concurrent and distributed systems modelling and verification; cloud and grid computing; social networks, machine learning and mobile networks; data processing and blockchain technology; and short papers.

Data Intensive Distributed Computing: Challenges and Solutions for Large-scale Information Management - Kosar, Tefvik 2012-01-31

"This book focuses on the challenges of distributed systems imposed by the data intensive applications, and on the different state-of-the-art solutions proposed to overcome these challenges"--Provided by publisher.

Grid and Distributed Computing - Tai-hoon Kim 2011-12-03

This book constitutes the refereed proceedings of the International Conference, GDC 2011, held as Part of the Future Generation Information Technology Conference, FGIT 2011, Jeju Island, Korea, in December 2011. The papers presented were carefully reviewed and selected from numerous submissions and focus on the various aspects of grid and distributed computing.

Distributed Systems - Sukumar Ghosh 2014-07-14

Distributed Systems: An Algorithmic Approach, Second Edition provides a balanced and straightforward treatment of the underlying theory and practical applications of distributed computing. As in the previous version, the language is

kept as unobscured as possible—clarity is given priority over mathematical formalism. This easily digestible text: Features significant updates that mirror the phenomenal growth of distributed systems Explores new topics related to peer-to-peer and social networks Includes fresh exercises, examples, and case studies Supplying a solid understanding of the key principles of distributed computing and their relationship to real-world applications, *Distributed Systems: An Algorithmic Approach, Second Edition* makes both an ideal textbook and a handy professional reference.

Knowledge and Systems Engineering - Van Nam Huynh 2013-10-01

The field of Knowledge and Systems Engineering (KSE) has experienced rapid development and inspired many applications in the world of information technology during the last decade. The KSE conference aims at providing an open international forum for presentation, discussion and exchange of the latest advances and challenges in research of the field. These proceedings contain papers presented at the Fifth International Conference on Knowledge and Systems Engineering (KSE 2013), which was held in Hanoi, Vietnam, during 17–19 October, 2013. Besides the main track of contributed papers, which are compiled into the first volume, the conference also featured several special sessions focusing on specific topics of interest as well as included one workshop, of which the papers form the second volume of these proceedings. The book gathers a total of 68 papers describing recent advances and development on various topics including knowledge discovery and data mining, natural language processing, expert systems, intelligent decision making, computational biology, computational modeling, optimization algorithms,

and industrial applications. *Distributed Systems* - George Coulouris 1994

The new edition of this bestselling title on Distributed Systems has been thoroughly revised throughout to reflect the state of the art in this rapidly developing field. It emphasizes the principles used in the design and construction of distributed computer systems based on networks of workstations and server computers.

Designing Distributed Systems - Brendan Burns 2018-02-20

Without established design patterns to guide them, developers have had to build distributed systems from scratch, and most of these systems are very unique indeed. Today, the increasing use of containers has paved the way for core distributed system patterns and reusable containerized components. This practical guide presents a collection of repeatable, generic patterns to help make the development of reliable distributed systems far more approachable and efficient. Author Brendan Burns—Director of Engineering at Microsoft Azure—demonstrates how you can adapt existing software design patterns for designing and building reliable distributed applications. Systems engineers and application developers will learn how these long-established patterns provide a common language and framework for dramatically increasing the quality of your system. Understand how patterns and reusable components enable the rapid development of reliable distributed systems Use the side-car, adapter, and ambassador patterns to split your application into a group of containers on a single machine Explore loosely coupled multi-node distributed patterns for replication, scaling, and communication between the components Learn distributed

system patterns for large-scale batch data processing covering work-queues, event-based processing, and coordinated workflows

Distributed Systems - Maarten van Steen 2017-02

For this third edition of - Distributed Systems, - the material has been thoroughly revised and extended, integrating principles and paradigms into nine chapters: 1. Introduction 2. Architectures 3. Processes 4. Communication 5. Naming 6. Coordination 7. Replication 8. Fault tolerance 9. Security A separation has been made between basic material and more specific subjects. The latter have been organized into boxed sections, which may be skipped on first reading. To assist in understanding the more algorithmic parts, example programs in Python have been included. The examples in the book leave out many details for readability, but the complete code is available through the book's Website, hosted at www.distributed-systems.net. A personalized digital copy of the book is available for free, as well as a printed version through Amazon.com.

Edsger Wybe Dijkstra - Krzysztof R. Apt 2022-07-14

Edsger Wybe Dijkstra (1930–2002) was one of the most influential researchers in the history of computer science, making fundamental contributions to both the theory and practice of computing. Early in his career, he proposed the single-source shortest path algorithm, now commonly referred to as Dijkstra's algorithm. He wrote (with Jaap Zonneveld) the first ALGOL 60 compiler, and designed and implemented with his colleagues the influential THE operating system. Dijkstra invented the field of concurrent algorithms, with concepts such as mutual exclusion, deadlock detection, and synchronization. A prolific writer and forceful

proponent of the concept of structured programming, he convincingly argued against the use of the Go To statement. In 1972 he was awarded the ACM Turing Award for "fundamental contributions to programming as a high, intellectual challenge; for eloquent insistence and practical demonstration that programs should be composed correctly, not just debugged into correctness; for illuminating perception of problems at the foundations of program design." Subsequently he invented the concept of self-stabilization relevant to fault-tolerant computing. He also devised an elegant language for nondeterministic programming and its weakest precondition semantics, featured in his influential 1976 book *A Discipline of Programming* in which he advocated the development of programs in concert with their correctness proofs. In the later stages of his life, he devoted much attention to the development and presentation of mathematical proofs, providing further support to his long-held view that the programming process should be viewed as a mathematical activity. In this unique new book, 31 computer scientists, including five recipients of the Turing Award, present and discuss Dijkstra's numerous contributions to computing science and assess their impact. Several authors knew Dijkstra as a friend, teacher, lecturer, or colleague. Their biographical essays and tributes provide a fascinating multi-author picture of Dijkstra, from the early days of his career up to the end of his life.

Distributed Computing and Networking - Shrishra Rao 2007-12-20

This book constitutes the fully refereed proceedings of the 9th International Conference on Distributed Computing and Networking, ICDCN 2008 - formerly known as IWDC

(International Workshop on Distributed Computing), held in Kolkata, India, in January 2008. The 30 revised full papers and 27 revised short papers presented together with 3 keynote talks and 1 invited lecture were carefully reviewed and selected from 185 submissions. The papers are organized in topical sections.

Designing Data-Intensive Applications

- Martin Kleppmann 2017-03-16

Data is at the center of many challenges in system design today. Difficult issues need to be figured out, such as scalability, consistency, reliability, efficiency, and maintainability. In addition, we have an overwhelming variety of tools, including relational databases, NoSQL datastores, stream or batch processors, and message brokers. What are the right choices for your application? How do you make sense of all these buzzwords? In this practical and comprehensive guide, author Martin Kleppmann helps you navigate this diverse landscape by examining the pros and cons of various technologies for processing and storing data. Software keeps changing, but the fundamental principles remain the same. With this book, software engineers and architects will learn how to apply those ideas in practice, and how to make full use of data in modern applications. Peer under the hood of the systems you already use, and learn how to use and operate them more effectively Make informed decisions by identifying the strengths and weaknesses of different tools Navigate the trade-offs around consistency, scalability, fault tolerance, and complexity Understand the distributed systems research upon which modern databases are built Peek behind the scenes of major online services, and learn from their architectures

Concurrency Control in Distributed

System Using Mutual Exclusion -

Sukhendu Kanrar 2017-08-04

The book presents various state-of-the-art approaches for process synchronization in a distributed environment. The range of algorithms discussed in the book starts from token based mutual exclusion algorithms that work on tree based topology. Then there are interesting solutions for more flexible logical topology like a directed graph, with or without cycle. In a completely different approach, one of the chapters presents two recent voting-based DME algorithms. All DME algorithms presented in the book aim to ensure fairness in terms of first come first serve (FCFS) order among equal priority processes. At the same time, the solutions consider the priority of the requesting processes and allocate resource for the earliest request when no such request from a higher priority process is pending.

Understanding Distributed Systems -

Roberto Vitillo 2021

Learning to build distributed systems is hard, especially if they are large scale. It's not that there is a lack of information out there. You can find academic papers, engineering blogs, and even books on the subject. The problem is that the available information is spread out all over the place, and if you were to put it on a spectrum from theory to practice, you would find a lot of material at the two ends, but not much in the middle. That is why I decided to write a book to teach the fundamentals of distributed systems so that you don't have to spend countless hours scratching your head to understand how everything fits together. This is the guide I wished existed when I first started out, and it's based on my experience building large distributed systems that scale to millions of requests per second

and billions of devices. If you develop the back-end of web or mobile applications (or would like to!), this book is for you. When building distributed systems, you need to be familiar with the network stack, data consistency models, scalability and reliability patterns, and much more. Although you can build applications without knowing any of that, you will end up spending hours debugging and re-designing their architecture, learning lessons that you could have acquired in a much faster and less painful way.

Introduction to Distributed

Algorithms - Gerard Tel 2000-09-28

Introduction : distributed systems -
The model - Communication protocols -
Routing algorithms - Deadlock-free
packet switching - Wave and traversal
algorithms - Election algorithms -
Termination detection - Anonymous
networks - Snapshots - Sense of
direction and orientation - Synchrony
in networks - Fault tolerance in
distributed systems - Fault tolerance
in asynchronous systems - Fault
tolerance in synchronous systems -
Failure detection - Stabilization.

Principles of Distributed Database Systems - M. Tamer Özsu 2011-02-24

This third edition of a classic textbook can be used to teach at the senior undergraduate and graduate levels. The material concentrates on fundamental theories as well as techniques and algorithms. The advent of the Internet and the World Wide Web, and, more recently, the emergence of cloud computing and streaming data applications, has forced a renewal of interest in distributed and parallel data management, while, at the same time, requiring a rethinking of some of the traditional techniques. This book covers the breadth and depth of this re-emerging field. The coverage consists of two parts. The first part discusses the fundamental principles

of distributed data management and includes distribution design, data integration, distributed query processing and optimization, distributed transaction management, and replication. The second part focuses on more advanced topics and includes discussion of parallel database systems, distributed object management, peer-to-peer data management, web data management, data stream systems, and cloud computing. New in this Edition: • New chapters, covering database replication, database integration, multidatabase query processing, peer-to-peer data management, and web data management.

• Coverage of emerging topics such as data streams and cloud computing • Extensive revisions and updates based on years of class testing and feedback Ancillary teaching materials are available.

Advances in Robotics and Automatic Control: Reviews, Vol. 1 - Sergey Yurish 2018-07-22

The first volume of the *Advances in Robotics and Automatic Control: Reviews*, Book Series started by IFSA Publishing in 2018 contains ten chapters written by 32 contributors from 9 countries: Belgium, China, Germany, India, Ireland, Japan, Serbia, Tunisia and USA. We hope that readers will enjoy this book and it can be a valuable tool for those who involved in research and development of various robots and automatic control systems.

Distributed Computing - Ajay D. Kshemkalyani 2011-03-03

Designing distributed computing systems is a complex process requiring a solid understanding of the design problems and the theoretical and practical aspects of their solutions. This comprehensive textbook covers the fundamental principles and models underlying the theory, algorithms and systems aspects of distributed computing.

Broad and detailed coverage of the theory is balanced with practical systems-related issues such as mutual exclusion, deadlock detection, authentication, and failure recovery. Algorithms are carefully selected, lucidly presented, and described without complex proofs. Simple explanations and illustrations are used to elucidate the algorithms. Important emerging topics such as peer-to-peer networks and network security are also considered. With vital algorithms, numerous illustrations, examples and homework problems, this textbook is suitable for advanced undergraduate and graduate students of electrical and computer engineering and computer science. Practitioners in data networking and sensor networks will also find this a valuable resource. Additional resources are available online at

www.cambridge.org/9780521876346.

Distributed Systems - Andrew S. Tanenbaum 2016-02-26

This second edition of *Distributed Systems, Principles & Paradigms*, covers the principles, advanced concepts, and technologies of distributed systems in detail, including: communication, replication, fault tolerance, and security. Intended for use in a senior/graduate level distributed systems course or by professionals, this text systematically shows how distributed systems are designed and implemented in real systems.

Distributed Computing and Networking - Soma Chaudhuri 2007-03-05

This book constitutes the refereed proceedings of the 8th International Conference on Distributed Computing and Networking, ICDCN 2006, held in Guwahati, India in December 2006. Coverage in this volume includes ad hoc networks, distributed computing and algorithms, security, grid and P2P computing, performance

evaluation, internetworking protocols and applications, optical networks and multimedia, sensor networks, and wireless networks.

Distributed and Cloud Computing - Kai Hwang 2013-12-18

Distributed and Cloud Computing: From Parallel Processing to the Internet of Things offers complete coverage of modern distributed computing technology including clusters, the grid, service-oriented architecture, massively parallel processors, peer-to-peer networking, and cloud computing. It is the first modern, up-to-date distributed systems textbook; it explains how to create high-performance, scalable, reliable systems, exposing the design principles, architecture, and innovative applications of parallel, distributed, and cloud computing systems. Topics covered by this book include: facilitating management, debugging, migration, and disaster recovery through virtualization; clustered systems for research or ecommerce applications; designing systems as web services; and social networking systems using peer-to-peer computing. The principles of cloud computing are discussed using examples from open-source and commercial applications, along with case studies from the leading distributed computing vendors such as Amazon, Microsoft, and Google. Each chapter includes exercises and further reading, with lecture slides and more available online. This book will be ideal for students taking a distributed systems or distributed computing class, as well as for professional system designers and engineers looking for a reference to the latest distributed technologies including cloud, P2P and grid computing. Complete coverage of modern distributed computing technology including clusters, the grid, service-oriented architecture,

massively parallel processors, peer-to-peer networking, and cloud computing Includes case studies from the leading distributed computing vendors: Amazon, Microsoft, Google, and more Explains how to use virtualization to facilitate management, debugging, migration, and disaster recovery Designed for undergraduate or graduate students taking a distributed systems course—each chapter includes exercises and further reading, with lecture slides and more available online

The Elements of Computing Systems - Noam Nisan 2008

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.

Distributed Computing - Rachid Guerraoui 2004-10-05

This book constitutes the refereed proceedings of the 18th International Conference on Distributed Computing, DISC 2004, held in Amsterdam, The Netherlands, in October 2004. The 31 revised full papers presented together with an extended abstract of an invited lecture and an eulogy for Peter Ruzicka were carefully reviewed and selected from 142 submissions. The entire scope of current issues in distributed computing is addressed, ranging from foundational and theoretical topics to algorithms and systems issues to applications in various fields.