Communication Networks And Computer Systems

Computing in Communication Networks
Computer and Communication Networks
Distributed Computer and Communication Networks
Global Rational Approximation for Computer Systems and Communication Networks
Telecommunications and Networking
Selected Topics in Communication Networks and Distributed Systems
Distributed Computer and Communication Networks
Computer and Communication Networks
Computer-communication Network Design and Analysis
Local Networks
Recent Advances in Communication Networks and Embedded Systems
Computer Communications and Networks
Computers, Interfaces, and Communication Networks
Recent Trends in Communication Networks
Computer Communication, Networking and Internet Security

Computer Systems Architecture
The Application of Multiple Processor Computer Systems to Digital Communication Networks
Computer Communication Networks
Computer Networks & Communications (NetCom)
Computer-aided Design of Communication Networks
Pervasive Computing and Networking
Communication Networks
Communication Networks Management
Analysis of Computer and Communication Networks
Blockchain Systems and Communication Networks: From Concepts to Implementation
Mobile and Wireless Communication Networks
Communication Networks and Computer Systems
Multiple Access Protocols
Computer Networks
Fundamentals of Performance Evaluation of Computer and Telecommunication Systems
Computer Networking and Communication Systems
Handbook of Green Information and Communication Systems

Computer-communication Networks
Distributed Computer and Communication Networks
Distributed Computer and Communication Networks
Distributed Systems and Computer Networks
Performance Guarantees in Communication Networks
Security, Privacy and Reliability in Computer Communications and Networks
Global Networks
Network Performance Analysis

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Computing in Communication Networks
Springer Science & Business Media
Providing performance guarantees is one of the most important issues for future telecommunication networks. This book describes theoretical developments in performance guarantees for telecommunication networks from the last decade. Written for the benefit of graduate students and scientists interested in telecommunications-network performance this book consists of two parts. The first introduces the recently-developed filtering theory for providing deterministic (hard) guarantees, such as bounded delay and queue length. The filtering theory is developed under the min-plus algebra,

where one replaces the usual addition with the min operator and the usual multiplication with the addition operator. As in the classical linear system theory, the filtering theory treats an arrival process (or a departure process) as a signal and a network element as a system. Network elements, including traffic regulators and servers, can be modelled as linear filters under the min-plus algebra, and they can be joined by concatenation, "filter bank summation", and feedback to form a composite network element. The problem of providing deterministic guarantees is equivalent to finding the impulse response of composite network elements. This section contains material on: - (s, r)-calculus - Filtering theory for deterministic traffic regulation, service guarantees and networks with variable-length packets - Traffic specification - Networks with multiple inputs and outputs - Constrained traffic regulation The second part of the book addresses stochastic (soft) guarantees, focusing mainly on tail distributions of queue lengths and packet loss probabilities and contains material on: - (s(q), r(q))-calculus and q-envelope rates - The large deviation principle - The theory of effective bandwidth The mathematical theory for stochastic guarantees is the theory of effective bandwidth. Based on the large deviation principle, the theory of effective bandwidth provides approximations for the bandwidths required to meet stochastic guarantees for both short-range dependent inputs and long-range dependent inputs.

Computer and Communication Networks McGraw-Hill Companies
This book constitutes the refereed proceedings of the 21th International Conference on Distributed and Computer and Communication Networks, DCCN 2018, held in Moscow, Russia, in September 2018. The 50 full papers and the 9 short papers were carefully reviewed and selected from 168 submissions. The papers cover the following topics: computer and communication networks architecture optimization; control in computer and communication networks; performance and QoS/QoE evaluation in wireless networks; analytical modeling and simulation of next-generation communications systems; queueing theory and reliability theory applications in computer networks; wireless 4G/5G networks, cm- and mm-wave radio technologies; RFID technology and its application in intellectual transportation networks; Internet of Things, wearables, and applications of distributed information systems; probabilistic and statistical models in information systems; mathematical modeling of high-tech systems; mathematical modeling and control problems; distributed and cloud computing systems, big data analytics.
Distributed Computer and Communication Networks Springer
The first Computer Architecture text to recognize that computers are now predinantly used in a networking environment, fully updated to include new technologies and with an all new

chapter on Distributed Computing.
Global Rational Approximation for Computer Systems and Communication Networks Springer Science & Business Media
In recent years there has been many developments in communication technology. This has greatly enhanced the computing power of small handheld resource-constrained mobile devices. Different generations of communication technology have evolved. This had led to new research for communication of large volumes of data in different transmission media and the design of different communication protocols. Another direction of research concerns the secure and error-free communication between the sender and receiver despite the risk of the presence of an eavesdropper. For the communication requirement of a huge amount of multimedia streaming data, a lot of research has been carried out in the design of proper overlay networks. The book addresses new research techniques that have evolved to handle these challenges.
Telecommunications and Networking Springer
Evaluating the performance of communications and computer systems constitutes a challenge. This volume contains contributions and presentations made by international researchers at a workshop which was held in April 2004 to honour Professor Erol Gelenbe on the occasion of his inaugural lecture as the Dennis Gabor Chair at Imperial College London.

Selected Topics in Communication Networks and Distributed Systems BoD – Books on Demand

Computer Networks: A Systems Approach, Fifth Edition, discusses the key principles of computer networking. It focuses on the underlying concepts and technologies that make the Internet work. Topics covered include network design and architecture; the ways users can connect to a network; the concepts of switching, routing, and internetworking; end-to-end protocols; congestion control and resource allocation; end-to-end data; network security; and network applications such as e-mail and the Web, IP telephony and video streaming, and peer-to-peer file sharing. Each chapter includes a problem statement, which introduces issues to be examined; shaded sidebars that elaborate on a topic or introduce a related advanced topic; What s Next? discussions that deal with emerging issues in research, the commercial world, or society; and exercises. This book is written for graduate or upper-division undergraduate classes in computer networking. It will also be useful for industry professionals retraining for network-related assignments, as well as network practitioners seeking to understand the workings of network protocols and the big picture of networking. Completely updated content with expanded coverage of the topics of utmost importance to networking professionals and students, including P2P, wireless, security, and applicationsIncreased focus

on application layer issues where innovative and exciting research and design is currently the center of attentionFree downloadable network simulation software and lab experiments manual available"

Distributed Computer and Communication Networks John Wiley & Sons

This book provides extensive insights on blockchain systems, starting from a historical perspective and moving towards building foundational knowledge, with focus on communication networks. It covers blockchain applications, algorithms, architectures, design and implementation, and security and privacy issues, providing the reader with a comprehensive overview. Further, it discusses blockchain systems and its integration to communication networks. The book includes hands-on, practical tutorials, self-assessment exercises, and review questions; tips and sample programs are also provided throughout. Complementary supporting material for instructors, including open source programming code for practical tutorials and exercises, is also available. The target audience includes graduate students, professionals, and researchers working in the areas of blockchain systems, distributed ledger technology, computer networks and communications, artificial intelligence, and cybersecurity.

Computer and Communication Networks Springer Science & Business Media

As the number and variety of

communication services grow, so do the challenges of designing cost-effective networks that meet the requirements of emerging technologies in wireless, sensor, and mesh networks. Computer and Communication Networks is the first book to offer balanced coverage of all these topics using extensive case studies and examples. This essential reference begins by providing a solid foundation in TCP/IP schemes, wireless networking, Internet applications, and network security. The author then delves into the field's analytical aspects and advanced networking protocols. Students and researchers will find up-to-date, comprehensive coverage of fundamental and advanced networking topics, including: Packet-switched networks and Internet Network protocols Links LAN Protocols Wireless Networks Transport Protocols Applications and Management Network Security Delay Analysis QoS High speed protocols Voice over IP Optical Networks Multicasting Protocols Compression of Voice and Video Sensor/Mesh Networks Network architecture books are often criticized for not offering enough practical, scenario-based information. Computer and Communication Networks provides an effective blend of theory and implementation not found in other books. Key features include: Figures and images that simplify complex topics Equations and algorithms Case studies that further explain concepts and theory Exercises and examples honed through the author's twelve years of teaching about networking Overall, readers will

find a thorough design and performance evaluation that provides a foundation for developing the ability to analyze and simulate complex communication networks.

Computer-communication Network Design and Analysis World Scientific This book constitutes the refereed proceedings of the 20th International Conference on Distributed and Computer and Communication Networks, DCCN 2017, held in Moscow, Russia, in September 2017. The 39 full papers and the two short papers were carefully reviewed and selected from 176 submissions. The papers cover the following topics: computer and communication networks architecture optimization; control in computer and communication networks; performance and QoS/QoE evaluation in wireless networks; analytical modeling and simulation of next-generation communications systems; queueing theory and reliability theory applications in computer networks; wireless 4G/5G networks, cm- and mm-wave radio technologies; RFID technology and its application in intellectual transportation networks; Internet of Things, wearables, and applications of distributed information systems; probabilistic and statistical models in information systems; mathematical modeling of high-tech systems; mathematical modeling and control problems; distributed and cloud computing systems, big data analytics.

Local Networks Academic Press "This book is a welcome and timely

addition to a long list of books on passive network synthesis, some of which are out of print. It is a comprehensive coverage of the subject of impedance matching networks there are plenty of excellent illustrative examples so that the reader should have no difficulty in applying the algorithms to similar situations this is an excellent book on passive network design for everyday use. I recommend it to all RF circuit designers, young and old." Circuits & Devices, Mar 2001

Recent Advances in Communication Networks and Embedded Systems World Scientific

This report describe work done to define and implement an experimental facility that emulates the behavior of a single node in an integrated circuit-packet-switching communications network: (1) Identified the functional characteristics of the system, (2) Developed and implemented a task decomposition that performs the different functions of an integrated switch, (3) Developed theoretical switch performance models and (4) Developed a reliability study of the hardware components.

Computer Communications and Networks Springer

Computer communications is one of the most rapidly developing technologies and it is a subject with which everyone in the computer systems profession should be familiar. Computer communications and networks is an introduction to communications technology and system design for practising and aspiring computer professionals. The subject is

described from the computer system designer's point of view rather than from the communications engineer's viewpoint. The presentation is suitable for introductory reading as well as for reference. The emphasis is on practical, rather than theoretical, aspects and on technology which will become more important in the future. The majority of the subject matter applies to civil and military communications but some aspects which are unique to military applications have been included where considered signifi cant. Computer communications is a rapidly changing and highly complex subject. Sufficient practical knowledge of the subject is not usually gained at university or college but is generally developed over a period of several years by trial and error, attending courses, reading reference books and journals; this book attempts to simplify and speed up the process by bringing together a body of information which is otherwise distributed throughout many books and journals. The information is presented in a framework which makes a wider understanding of the subject possible. Basic knowledge of communications is assumed, a general famil iarity with computer systems is anticipated in later chapters, and, where relevant, theory is explained.

Computers, Interfaces, and Communication Networks Pearson Education

This volume presents proceedings from the 19th IFIP World Computer Congress in Santiago, Chile. The proceedings of

the World Computer Congress are a product of the gathering of 2,000 delegates from more than 70 countries to discuss a myriad of topics in the ICT domain. Of particular note, this marks the first time that a World Computer Congress has been held in a Latin American country. Topics in this series include: - The 4th International Conference on Theoretical Computer Science - Education for the 21st Century-Impact of ICT and Digital Resources - Mobile and Wireless Communication Networks - Ad-Hoc Networking - Network Control and Engineering for QoS, Security, and Mobility - The Past and Future of Information Systems: 1976-2006 and Beyond - History of Computing and Education - Biologically Inspired Cooperative Computing - Artificial Intelligence in Theory and Practice - Applications in Artificial Intelligence - Advanced Software Engineering: Expanding the Frontiers of Software

Recent Trends in Communication Networks Academic Press

The book is a compilation of high-quality scientific papers presented at the 3rd International Conference on Computer & Communication Technologies (IC3T 2016). The individual papers address cutting-edge technologies and applications of soft computing, artificial intelligence and communication. In addition, a variety of further topics are discussed, which include data mining, machine intelligence, fuzzy computing, sensor networks, signal and image processing, human-computer interaction,

web intelligence, etc. As such, it offers readers a valuable and unique resource.
Computer Communication, Networking and Internet Security Pearson Education
The book presents some key mathematical tools for the performance analysis of communication networks and computer systems. Communication networks and computer systems have become extremely complex. The statistical resource sharing induced by the random behavior of users and the underlying protocols and algorithms may affect Quality of Service. This book introduces the main results of queuing theory that are useful for analyzing the performance of these systems. These mathematical tools are key to the development of robust dimensioning rules and engineering methods. A number of examples illustrate their practical interest.
Computer Systems Architecture John Wiley & Sons
This guide highlights the three most critical success factors of network management, including its functions, instruments, and human resource skills, showing how to avoid errors and successfully manage communication networks. The guide describes how to use the connectivity and manageability components of a network to improve system efficiency, integrity, and security. It explores the performance impact of network components, offers a state-of-the-art review of propriety, de facto, and standard architectures, and illustrates three classes of network management tools, explaining how to choose among

them and implement them for optimum data output.

The Application of Multiple Processor Computer Systems to Digital Communication Networks Morgan Kaufmann

This book constitutes the refereed proceedings of the 19th International Conference on Distributed and Computer and Communication Networks, DCCN 2016, held in Moscow, Russia, in November 2016. The 50 revised full papers and the 6 revised short papers presented were carefully reviewed and selected from 141 submissions. The papers cover the following topics: computer and communication networks architecture optimization; control in computer and communication networks; performance and QoS/QoE evaluation in wireless networks; analytical modeling and simulation of next-generation communications systems; queuing theory and reliability theory applications in computer networks; wireless 4G/5G networks, cm- and mm-wave radio technologies; RFID technology and its application in intellectual transportation networks; internet of things, wearables, and applications of distributed information systems; probabilistic and statistical models in information systems; mathematical modeling of high-tech systems; mathematical modeling and control problems; distributed and cloud computing systems, big data analytics.

Computer Communication Networks Prentice Hall

The only singular, all-encompassing

textbook on state-of-the-art technical performance evaluation Fundamentals of Performance Evaluation of Computer and Telecommunication Systems uniquely presents all techniques of performance evaluation of computers systems, communication networks, and telecommunications in a balanced manner. Written by the renowned Professor Mohammad S. Obaidat and his coauthor Professor Noureddine Boudriga, it is also the only resource to treat computer and telecommunication systems as inseparable issues. The authors explain the basic concepts of performance evaluation, applications, performance evaluation metrics, workload types, benchmarking, and characterization of workload. This is followed by a review of the basics of probability theory, and then, the main techniques for performance evaluation namely measurement, simulation, and analytic modeling with case studies and examples. Contains the practical and applicable knowledge necessary for a successful performance evaluation in a balanced approach Reviews measurement tools, benchmark programs, design of experiments, traffic models, basics of queueing theory, and operational and mean value analysis Covers the techniques for validation and verification of simulation as well as random number generation, random variate generation, and testing with examples Features numerous examples and case studies, as well as exercises and problems for use as homework or programming assignments

Fundamentals of Performance Evaluation of Computer and Telecommunication Systems is an ideal textbook for graduate students in computer science, electrical engineering, computer engineering, and information sciences, technology, and systems. It is also an excellent reference for practicing engineers and scientists.

Computer Networks & Communications (NetCom) Springer Science & Business Media

Computer Systems Organization -- Computer-Communication Networks.

Computer-aided Design of Communication Networks Springer Nature

This text covers many different aspects of both wide area and local area networks. It goes behind networking jargon to demonstrate why networking protocols have evolved as they have, and the need for standardization. The text also gives an insight into the challenges which still remain and some of the possibilities for the future.