Distributed And Cloud Computing From Parallel Processing To The Internet Of Things

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Euro-Par 2015: Parallel Processing Workshops - Sascha Hunold 2015-12-17 This book constitutes the thoroughly refereed post-conference proceedings of 12 workshops held at the 21st International Conference on Parallel and Distributed Computing,

Euro-Par 2015, in Vienna, Austria, in August 2015. The 67 revised full papers presented were carefully reviewed and selected from 121 submissions. The volume includes papers from the following workshops: BigDataCloud: 4th Workshop on Big Data Management in Clouds - Euro-EDUPAR: First European Workshop on Parallel and Distributed Computing Education for Undergraduate Students - Hetero Par: 13th International Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms - LSDVE: Third Workshop on Large Scale Distributed Virtual Environments - OMHI: 4th International Workshop on On-chip Memory Hierarchies and Interconnects - PADAPS: Third Workshop on Parallel and Distributed Agent-Based Simulations - PELGA: Workshop on Performance Engineering for Large-Scale Graph Analytics - REPPAR: Second International Workshop on Reproducibility in Parallel Computing - Resilience: 8th Workshop on Resiliency in High Performance Computing in Clusters, Clouds, and Grids - ROME: Third Workshop on Runtime and Operating Systems for the Many Core Era - UCHPC: 8th Workshop on UnConventional High Performance Computing - and VHPC: 10th Workshop on Virtualization in High-Performance Cloud Computing.

Distributed and Cloud Computing - Kai Hwang 2012

Distributed and Cloud Computing, named a 2012 Outstanding Academic Title by the American Library Association's Choice publication, explains how to create high-performance, scalable, reliable systems, exposing the design principles, architecture, and innovative applications of parallel, distributed, and

cloud computing systems. Starting with an overview of modern distributed models, the book provides comprehensive coverage of distributed and cloud computing, including: Facilitating management, debugging, migration, and disaster recovery through virtualization Clustered systems for research or ecommerce applications Designing systems as web services Social networking systems using peer-to-peer computing Principles of cloud computing using examples from open-source and commercial applications Using examples from open-source and commercial vendors, the text describes cloud-based systems for research, e-commerce, social networking and more. 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

Big Data - Balamurugan Balusamy 2021-03-15

Learn Big Data from the ground up with this complete and up-to-date resource from leaders in the field Big Data: Concepts, Technology, and Architecture delivers a comprehensive treatment of Big Data tools, terminology, and technology perfectly suited to a wide range of business professionals, academic researchers, and students. Beginning with a fulsome overview of what

we mean when we say, “Big Data,” the book moves on to discuss every stage of the lifecycle of Big Data. You’ll learn about the creation of structured, unstructured, and semi-structured data, data storage solutions, traditional database solutions like SQL, data processing, data analytics, machine learning, and data mining. You’ll also discover how specific technologies like Apache Hadoop, SQOOP, and Flume work. Big Data also covers the central topic of big data visualization with Tableau, and you’ll learn how to create scatter plots, histograms, bar, line, and pie charts with that software. Accessibly organized, Big Data includes illuminating case studies throughout the material, showing you how the included concepts have been applied in real-world settings. Some of those concepts include: The common challenges facing big data technology and technologists, like data heterogeneity and incompleteness, data volume and velocity, storage limitations, and privacy concerns Relational and non-relational databases, like RDBMS, NoSQL, and NewSQL databases Virtualizing Big Data through encapsulation, partitioning, and isolating, as well as big data server virtualization Apache software, including Hadoop, Cassandra, Avro, Pig, Mahout, Oozie, and Hive The Big Data analytics lifecycle, including business case evaluation, data preparation, extraction, transformation, analysis, and visualization Perfect for data scientists, data engineers, and database managers, Big Data also belongs on the bookshelves of business intelligence analysts who are required to make decisions based on large volumes of information. Executives and managers who lead teams responsible for keeping or

understanding large datasets will also benefit from this book.

Euro-Par 2017: Parallel Processing Workshops - Dora B. Heras 2018-02-07

This book constitutes the proceedings of the workshops of the 23rd International Conference on Parallel and Distributed Computing, Euro-Par 2017, held in Santiago de Compostela. Spain in August 2017. The 59 full papers presented were carefully reviewed and selected from 119 submissions. Euro-Par is an annual, international conference in Europe, covering all aspects of parallel and distributed processing. These range from theory to practice, from small to the largest parallel and distributed systems and infrastructures, from fundamental computational problems to full-edged applications, from architecture, compiler, language and interface design and implementation to tools, support infrastructures, and application performance aspects.

Distributed and Cloud Computing - Kai Hwang 2013

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.

Euro-Par 2013: Parallel Processing - Felix Wolf 2013-07-20

This book constitutes the refereed proceedings of the 19th International Conference on Parallel and Distributed Computing, Euro-Par 2013, held in Aachen, Germany, in August 2013. The 70 revised full

papers presented were carefully reviewed and selected from 261 submissions. The papers are organized in 16 topical sections: support tools and environments; performance prediction and evaluation; scheduling and load balancing; high-performance architectures and compilers; parallel and distributed data management; grid, cluster and cloud computing; peer-to-peer computing; distributed systems and algorithms; parallel and distributed programming; parallel numerical algorithms; multicore and manycore programming; theory and algorithms for parallel computation; high performance networks and communication; high performance and scientific applications; GPU and accelerator computing; and extreme-scale computing.

Topics in Parallel and Distributed Computing - Sushil K Prasad 2015-09-16

Topics in Parallel and Distributed Computing provides resources and guidance for those learning PDC as well as those teaching students new to the discipline. The pervasiveness of computing devices containing multicore CPUs and GPUs, including home and office PCs, laptops, and mobile devices, is making even common users dependent on parallel processing. Certainly, it is no longer sufficient for even basic programmers to acquire only the traditional sequential programming skills. The preceding trends point to the need for imparting a broad-based skill set in PDC technology. However, the rapid changes in computing hardware platforms and devices, languages, supporting programming environments, and research advances, poses a challenge both for newcomers and seasoned computer scientists. This edited collection has been developed over the past

several years in conjunction with the IEEE technical committee on parallel processing (TCPP), which held several workshops and discussions on learning parallel computing and integrating parallel concepts into courses throughout computer science curricula. Contributed and developed by the leading minds in parallel computing research and instruction Provides resources and guidance for those learning PDC as well as those teaching students new to the discipline Succinctly addresses a range of parallel and distributed computing topics Pedagogically designed to ensure understanding by experienced engineers and newcomers Developed over the past several years in conjunction with the IEEE technical committee on parallel processing (TCPP), which held several workshops and discussions on learning parallel computing and integrating parallel concepts

Parallel Processing for Scientific Computing - Michael A. Heroux 2006-01-01

Parallel processing has been an enabling technology in scientific computing for more than 20 years. This book is the first in-depth discussion of parallel computing in 10 years; it reflects the mix of topics that mathematicians, computer scientists, and computational scientists focus on to make parallel processing effective for scientific problems. Presently, the impact of parallel processing on scientific computing varies greatly across disciplines, but it plays a vital role in most problem domains and is absolutely essential in many of them. Parallel Processing for Scientific Computing is divided into four parts: The first concerns performance modeling, analysis, and optimization; the second

focuses on parallel algorithms and software for an array of problems common to many modeling and simulation applications; the third emphasizes tools and environments that can ease and enhance the process of application development; and the fourth provides a sampling of applications that require parallel computing for scaling to solve larger and realistic models that can advance science and engineering.

Advances in Edge Computing: Massive Parallel Processing and Applications - F. Xhafa 2020-03-10

The rapid advance of Internet of Things (IoT) technologies has resulted in the number of IoT-connected devices growing exponentially, with billions of connected devices worldwide. While this development brings with it great opportunities for many fields of science, engineering, business and everyday life, it also presents challenges such as an architectural bottleneck – with a very large number of IoT devices connected to a rather small number of servers in Cloud data centers – and the problem of data deluge. Edge computing aims to alleviate the computational burden of the IoT for the Cloud by pushing some of the computations and logics of processing from the Cloud to the Edge of the Internet. It is becoming commonplace to allocate tasks and applications such as data filtering, classification, semantic enrichment and data aggregation to this layer, but to prevent this new layer from itself becoming another bottleneck for the whole computing stack from IoT to the Cloud, the Edge computing layer needs to be capable of implementing massively parallel and distributed algorithms efficiently. This book, Advances in Edge

Computing: Massive Parallel Processing and Applications, addresses these challenges in 11 chapters. Subjects covered include: Fog storage software architecture; IoT-based crowdsourcing; the industrial Internet of Things; privacy issues; smart home management in the Cloud and the Fog; and a cloud robotic solution to assist medical applications. Providing an overview of developments in the field, the book will be of interest to all those working with the Internet of Things and Edge computing.

Euro-Par 2016: Parallel Processing - Pierre-François Dutot 2016-08-10
This book constitutes the refereed proceedings of the 22nd International Conference on Parallel and Distributed Computing, Euro-Par 2016, held in Grenoble, France, in August 2016. The 47 revised full papers presented together with 2 invited papers and one industrial paper were carefully reviewed and selected from 176 submissions. The papers are organized in 12 topical sections: Support Tools and Environments; Performance and Power Modeling, Prediction and Evaluation; Scheduling and Load Balancing; High Performance Architectures and Compilers; Parallel and Distributed Data Management and Analytics; Cluster and Cloud Computing; Distributed Systems and Algorithms; Parallel and Distributed Programming, Interfaces, Languages; Multicore and Manycore Parallelism; Theory and Algorithms for Parallel Computation and Networking; Parallel Numerical Methods and Applications; Accelerator Computing.

Mastering Cloud Computing - Rajkumar Buyya 2013-04-05
Mastering Cloud Computing is designed for undergraduate students learning to develop cloud

computing applications. Tomorrow's applications won't live on a single computer but will be deployed from and reside on a virtual server, accessible anywhere, any time. Tomorrow's application developers need to understand the requirements of building apps for these virtual systems, including concurrent programming, high-performance computing, and data-intensive systems. The book introduces the principles of distributed and parallel computing underlying cloud architectures and specifically focuses on virtualization, thread programming, task programming, and map-reduce programming. There are examples demonstrating all of these and more, with exercises and labs throughout. Explains how to make design choices and tradeoffs to consider when building applications to run in a virtual cloud environment Real-world case studies include scientific, business, and energy-efficiency considerations

Distributed Computing in Java 9 - Raja Malleswara Rao Pattamsetti 2017-06-30 Explore the power of distributed computing to write concurrent, scalable applications in Java About This Book Make the best of Java 9 features to write succinct code Handle large amounts of data using HPC Make use of AWS and Google App Engine along with Java to establish a powerful remote computation system Who This Book Is For This book is for basic to intermediate level Java developers who is aware of object-oriented programming and Java basic concepts. What You Will Learn Understand the basic concepts of parallel and distributed computing/programming Achieve performance improvement using parallel processing, multithreading,

concurrency, memory sharing, and hpc cluster computing Get an in-depth understanding of Enterprise Messaging concepts with Java Messaging Service and Web Services in the context of Enterprise Integration Patterns Work with Distributed Database technologies Understand how to develop and deploy a distributed application on different cloud platforms including Amazon Web Service and Docker CaaS Concepts Explore big data technologies Effectively test and debug distributed systems Gain thorough knowledge of security standards for distributed applications including two-way Secure Socket Layer In Detail Distributed computing is the concept with which a bigger computation process is accomplished by splitting it into multiple smaller logical activities and performed by diverse systems, resulting in maximized performance in lower infrastructure investment. This book will teach you how to improve the performance of traditional applications through the usage of parallelism and optimized resource utilization in Java 9. After a brief introduction to the fundamentals of distributed and parallel computing, the book moves on to explain different ways of communicating with remote systems/objects in a distributed architecture. You will learn about asynchronous messaging with enterprise integration and related patterns, and how to handle large amount of data using HPC and implement distributed computing for databases. Moving on, it explains how to deploy distributed applications on different cloud platforms and self-contained application development. You will also learn about big data technologies and understand how they contribute to distributed computing. The book

concludes with the detailed coverage of testing, debugging, troubleshooting, and security aspects of distributed applications so the programs you build are robust, efficient, and secure. Style and approach This is a step-by-step practical guide with real-world examples.

Research Anthology on Architectures, Frameworks, and Integration Strategies for Distributed and Cloud Computing - Management Association, Information Resources 2021-01-25 Distributed systems intertwine with our everyday lives. The benefits and current shortcomings of the underpinning technologies are experienced by a wide range of people and their smart devices. With the rise of large-scale IoT and similar distributed systems, cloud bursting technologies, and partial outsourcing solutions, private entities are encouraged to increase their efficiency and offer unparalleled availability and reliability to their users. The Research Anthology on Architectures, Frameworks, and Integration Strategies for Distributed and Cloud Computing is a vital reference source that provides valuable insight into current and emergent research occurring within the field of distributed computing. It also presents architectures and service frameworks to achieve highly integrated distributed systems and solutions to integration and efficient management challenges faced by current and future distributed systems. Highlighting a range of topics such as data sharing, wireless sensor networks, and scalability, this multi-volume book is ideally designed for system administrators, integrators, designers, developers, researchers, academicians, and students.

Euro-Par 2016: Parallel Processing Workshops -

Frédéric Desprez 2017-05-26
This book constitutes the proceedings of the workshops of the 23rd International Conference on Parallel and Distributed Computing, Euro-Par 2016, held in Grenoble, France in August 2016. The 65 full papers presented were carefully reviewed and selected from 95 submissions. The volume includes the papers from the following workshops: Euro-EDUPAR (Second European Workshop on Parallel and Distributed Computing Education for Undergraduate Students) – HeteroPar 2016 (the 14th International Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms) – IWMSE (5th International Workshop on Multicore Software Engineering) – LSDVE (Fourth Workshop on Large-Scale Distributed Virtual Environments) - PADABS (Fourth Workshop on Parallel and Distributed Agent-Based Simulations) – PBio (Fourth International Workshop on Parallelism in Bioinformatics) – PELGA (Second Workshop on Performance Engineering for Large-Scale Graph Analytics) – REPPAR (Third International Workshop on Reproducibility in Parallel Computing) – Resilience (9th Workshop in Resilience in High Performance Computing in Clusters, Clouds, and Grids) – ROME (Fourth Workshop on Runtime and Operating Systems for the Many-Core Era) – UCHPC (9th Workshop on UnConventional High-Performance Computing).

Euro-Par 2018: Parallel Processing - Marco Aldinucci 2018-08-20
This book constitutes the proceedings of the 24th International Conference on Parallel and Distributed Computing, Euro-Par 2018, held in Turin, Italy, in August 2018. The 57 full papers presented in this

volume were carefully reviewed and selected from 194 submissions. They were organized in topical sections named: support tools and environments; performance and power modeling, prediction and evaluation; scheduling and load balancing; high performance architecutres and compilers; parallel and distributed data management and analytics; cluster and cloud computing; distributed systems and algorithms; parallel and distributed programming, interfaces, and languages; multicore and manycore methods and tools; theory and algorithms for parallel computation and networking; parallel numerical methods and applications; and accelerator computing for advanced applications.

Euro-Par 2014: Parallel Processing Workshops - Luís Lopes 2014-12-11

The two volumes LNCS 8805 and 8806 constitute the thoroughly refereed post-conference proceedings of 18 workshops held at the 20th International Conference on Parallel Computing, Euro-Par 2014, in Porto, Portugal, in August 2014. The 100 revised full papers presented were carefully reviewed and selected from 173 submissions. The volumes include papers from the following workshops: APCI&E (First Workshop on Applications of Parallel Computation in Industry and Engineering - BigDataCloud (Third Workshop on Big Data Management in Clouds) - DIHC (Second Workshop on Dependability and Interoperability in Heterogeneous Clouds) - FedICI (Second Workshop on Federative and Interoperable Cloud Infrastructures) - Hetero Par (12th International Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms) - HiBB (5th Workshop on

High Performance Bioinformatics and Biomedicine) - LSDVE (Second Workshop on Large Scale Distributed Virtual Environments on Clouds and P2P) - MuCoCoS (7th International Workshop on Multi-/Many-core Computing Systems) - OMHI (Third Workshop on On-chip Memory Hierarchies and Interconnects) - PADAPS (Second Workshop on Parallel and Distributed Agent-Based Simulations) - PROPER (7th Workshop on Productivity and Performance) - Resilience (7th Workshop on Resiliency in High Performance Computing with Clusters, Clouds, and Grids) - REPPAR (First International Workshop on Reproducibility in Parallel Computing) - ROME (Second Workshop on Runtime and Operating Systems for the Many Core Era) - SPPEXA (Workshop on Software for Exascale Computing) - TASUS (First Workshop on Techniques and Applications for Sustainable Ultrascale Computing Systems) - UCHPC (7th Workshop on Un Conventional High Performance Computing) and VHPC (9th Workshop on Virtualization in High-Performance Cloud Computing.

Tools and Environments for Parallel and Distributed Computing - Salim Hariri 2004-03-01

* An invaluable reference for anyone designing new parallel or distributed systems. * Includes detailed case studies of specific systems from Stanford, MIT, and other leading research universities. * The authors emphasize performance, surveying all available techniques.

Parallel and Distributed Programming Using C++ - Cameron Hughes 2004

This text takes complicated and almost unapproachable parallel programming techniques and presents them in a simple,

understandable manner. It covers the fundamentals of programming for distributed environments like Internets and Intranets as well as the topic of Web Based Agents.

Advanced Computer Architecture and Parallel Processing - Hesham El-Rewini 2005-04-08

Computer architecture deals with the physical configuration, logical structure, formats, protocols, and operational sequences for processing data, controlling the configuration, and controlling the operations over a computer. It also encompasses word lengths, instruction codes, and the interrelationships among the main parts of a computer or group of computers. This two-volume set offers a comprehensive coverage of the field of computer organization and architecture.

Algorithms and Architectures for Parallel Processing - Joanna Kolodziej 2013-12-09

This two volume set LNCS 8285 and 8286 constitutes the proceedings of the 13th International Conference on Algorithms and Architectures for Parallel Processing, ICA3PP 2013, held in Vietri sul Mare, Italy in December 2013. The first volume contains 10 distinguished and 31 regular papers selected from 90 submissions and covering topics such as big data, multi-core programming and software tools, distributed scheduling and load balancing, high-performance scientific computing, parallel algorithms, parallel architectures, scalable and distributed databases, dependability in distributed and parallel systems, wireless and mobile computing. The second volume consists of four sections including 35 papers from one symposium and three workshops held in conjunction with ICA3PP 2013 main conference.

These are 13 papers from the 2013 International Symposium on Advances of Distributed and Parallel Computing (ADPC 2013), 5 papers of the International Workshop on Big Data Computing (BDC 2013), 10 papers of the International Workshop on Trusted Information in Big Data (TIBiDa 2013) as well as 7 papers belonging to Workshop on Cloud-assisted Smart Cyber-Physical Systems (C-Smart CPS 2013).

Cloud Computing - Dan C. Marinescu 2013-05-30 Cloud Computing: Theory and Practice provides students and IT professionals with an in-depth analysis of the cloud from the ground up. Beginning with a discussion of parallel computing and architectures and distributed systems, the book turns to contemporary cloud infrastructures, how they are being deployed at leading companies such as Amazon, Google and Apple, and how they can be applied in fields such as healthcare, banking and science. The volume also examines how to successfully deploy a cloud application across the enterprise using virtualization, resource management and the right amount of networking support, including content delivery networks and storage area networks. Developers will find a complete introduction to application development provided on a variety of platforms. Learn about recent trends in cloud computing in critical areas such as: resource management, security, energy consumption, ethics, and complex systems Get a detailed hands-on set of practical recipes that help simplify the deployment of a cloud based system for practical use of computing clouds along with an in-depth discussion of several projects Understand the evolution of cloud computing and why the

cloud computing paradigm has a better chance to succeed than previous efforts in large-scale distributed computing

Euro-Par 2014: Parallel Processing - Fernando Silva 2014-08-11

This book constitutes the refereed proceedings of the 20th International Conference on Parallel and Distributed Computing, Euro-Par 2014, held in Porto, Portugal, in August 2014. The 68 revised full papers presented were carefully reviewed and selected from 267 submissions. The papers are organized in 15 topical sections: support tools environments; performance prediction and evaluation; scheduling and load balancing; high-performance architectures and compilers; parallel and distributed data management; grid, cluster and cloud computing; green high performance computing; distributed systems and algorithms; parallel and distributed programming; parallel numerical algorithms; multicore and manycore programming; theory and algorithms for parallel computation; high performance networks and communication; high performance and scientific applications; and GPU and accelerator computing.

Euro-Par 2010 - Parallel Processing - Pasqua D'Ambra 2010-09-02

Annotation This book constitutes the refereed proceedings of the 16th International Euro-Par Conference held in Ischia, Italy, in August/September 2010. The 90 revised full papers presented were carefully reviewed and selected from 256 submissions. The papers are organized in topical sections on support tools and environments; performance prediction and evaluation; scheduling and load-balancing; high performance architectures and compilers; parallel and

distributed data management; grid, cluster and cloud computing; peer to peer computing; distributed systems and algorithms; parallel and distributed programming; parallel numerical algorithms; multicore and manycore programming; theory and algorithms for parallel computation; high performance networks; and mobile and ubiquitous computing.

Euro-Par 2017: Parallel Processing - Francisco F. Rivera 2017-08-18

This book constitutes the proceedings of the 23rd International Conference on Parallel and Distributed Computing, Euro-Par 2017, held in Santiago de Compostela, Spain, in August/September 2017. The 50 revised full papers presented together with 2 abstract of invited talks and 1 invited paper were carefully reviewed and selected from 176 submissions. The papers are organized in the following topical sections: support tools and environments; performance and power modeling, prediction and evaluation; scheduling and load balancing; high performance architectures and compilers; parallel and distributed data management and analytics; cluster and cloud computing; distributed systems and algorithms; parallel and distributed programming, interfaces and languages; multicore and manycore parallelism; theory and algorithms for parallel computation and networking; prallel numerical methods and applications; and accelerator computing.

Programming Multicore and Many-core Computing Systems - Sabri Pllana 2017-01-23

Programming multi-core and many-core computing systems Sabri Pllana, Linnaeus University, Sweden Fatos Xhafa, Technical University of Catalonia, Spain Provides

state-of-the-art methods for programming multi-core and many-core systems The book comprises a selection of twenty two chapters covering: fundamental techniques and algorithms; programming approaches; methodologies and frameworks; scheduling and management; testing and evaluation methodologies; and case studies for programming multi-core and many-core systems. Program development for multi-core processors, especially for heterogeneous multi-core processors, is significantly more complex than for single-core processors. However, programmers have been traditionally trained for the development of sequential programs, and only a small percentage of them have experience with parallel programming. In the past, only a relatively small group of programmers interested in High Performance Computing (HPC) was concerned with the parallel programming issues, but the situation has changed dramatically with the appearance of multi-core processors on commonly used computing systems. It is expected that with the pervasiveness of multi-core processors, parallel programming will become mainstream. The pervasiveness of multi-core processors affects a large spectrum of systems, from embedded and general-purpose, to high-end computing systems. This book assists programmers in mastering the efficient programming of multi-core systems, which is of paramount importance for the software-intensive industry towards a more effective product-development cycle. Key features: Lessons, challenges, and roadmaps ahead. Contains real world examples and case studies. Helps programmers in mastering the efficient programming of multi-core and many-core systems. The

book serves as a reference for a larger audience of practitioners, young researchers and graduate level students. A basic level of programming knowledge is required to use this book.

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.

Euro-Par 2013: Parallel Processing Workshops - Dieter an Mey 2014-04-10

This book constitutes thoroughly refereed post-conference proceedings of the workshops of the 19th International Conference on Parallel Computing, Euro-

Par 2013, held in Aachen, Germany in August 2013. The 99 papers presented were carefully reviewed and selected from 145 submissions. The papers include seven workshops that have been co-located with Euro-Par in the previous years: - Big Data Cloud (Second Workshop on Big Data Management in Clouds) - Hetero Par (11th Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms) - HiBB (Fourth Workshop on High Performance Bioinformatics and Biomedicine) - OMHI (Second Workshop on On-chip Memory Hierarchies and Interconnects) - PROPER (Sixth Workshop on Productivity and Performance) - Resilience (Sixth Workshop on Resiliency in High Performance Computing with Clusters, Clouds, and Grids) - UCHPC (Sixth Workshop on Un Conventional High Performance Computing) as well as six newcomers: - DIHC (First Workshop on Dependability and Interoperability in Heterogeneous Clouds) - Fed ICI (First Workshop on Federative and Interoperable Cloud Infrastructures) - LSDVE (First Workshop on Large Scale Distributed Virtual Environments on Clouds and P2P) - MHPC (Workshop on Middleware for HPC and Big Data Systems) -PADABS (First Workshop on Parallel and Distributed Agent Based Simulations) - ROME (First Workshop on Runtime and Operating Systems for the Many core Era) All these workshops focus on promotion and advancement of all aspects of parallel and distributed computing.

Euro-Par 2015: Parallel Processing - Jesper Larsson Träff 2015-07-24 This book constitutes the refereed proceedings of the 21st International Conference on Parallel and

Distributed Computing, Euro-Par 2015, held in Vienna, Austria, in August 2015. The 51 revised full papers presented together with 2 invited papers were carefully reviewed and selected from 190 submissions. The papers are organized in the following topical sections: support tools and environments; performance modeling, prediction and evaluation; scheduling and load balancing; architecture and compilers; parallel and distributed data management; grid, cluster and cloud computing; distributed systems and algorithms; parallel and distributed programming, interfaces and languages; multi- and many-core programming; theory and algorithms for parallel computation; numerical methods and applications; and accelerator computing.

Euro-Par 2021: Parallel Processing - Leonel Sousa 2021-08-28

This book constitutes the proceedings of the 27th International Conference on Parallel and Distributed Computing, Euro-Par 2021, held in Lisbon, Portugal, in August 2021. The conference was held virtually due to the COVID-19 pandemic. The 38 full papers presented in this volume were carefully reviewed and selected from 136 submissions. They deal with parallel and distributed computing in general, focusing on compilers, tools and environments; performance and power modeling, prediction and evaluation; scheduling and load balancing; data management, analytics and machine learning; cluster, cloud and edge computing; theory and algorithms for parallel and distributed processing; parallel and distributed programming, interfaces, and languages; parallel numerical methods and applications; and high performance architecture and accelerators.

Process Algebra for Parallel

and Distributed Processing - Michael Alexander 2008-12-22
Collects the Latest Research Involving the Application of Process Algebra to Computing Exploring state-of-the-art applications, Process Algebra for Parallel and Distributed Processing shows how one formal method of reasoning—process algebra—has become a powerful tool for solving design and implementation challenges of concurrent systems. Parallel Programming Divided into three parts, the book begins by parallelizing an algorithm for the Cell Broadband Engine processor of IBM, Sony, and Toshiba. It also develops a runtime environment that can be ported to different parallel platforms and describes the formal model of action systems. Distributed Systems The next part presents a process algebra (mCRL2) that targets distributed applications, looks at how to turn prose descriptions into unambiguous specifications, extends pi-calculus to create a service-oriented mobility abstract machine, and introduces the Channel Ambient Machine for mobile applications. Embedded Systems The final section combines state-based Z with the event-based process algebra CSP in a formal methodology called Circus. It also develops a pair of process algebras (PARS) to address the problem of scheduling in real-time embedded systems and emphasizes the reuse of concurrent artifacts across different hardware platforms. Highlighting recent research work, this volume addresses multicore programming problems and the evolution of the growing body of concurrency-enabled languages. It proposes solutions to the problems of designing and implementing today’s concurrency-constrained

multicore processor and cloud architectures.

Parallel and Distributed Computing and Networks - Luo Qi 2011-07-12

This book constitutes the refereed proceedings of the International conference on Parallel and Distributed Computing and Networks, PDCN 2011, held in Chongqing, China, in December 2010. The 19 revised full papers presented were carefully reviewed and selected from numerous submissions. The conference provided a forum for participants from industry, academic, and non-profit organizations to exchange innovative ideas on Parallel and Distributed Computing and Networks related technologies. The papers address current issues in distributed, parallel, ubiquitous, and cloud computing with special focus on systems security, healthcare, and sports economics.

PARALLEL AND DISTRIBUTED COMPUTING : ARCHITECTURES AND ALGORITHMS - BASU, S. K. 2016-01-02

This concise text is designed to present the recent advances in parallel and distributed architectures and algorithms within an integrated framework. Beginning with an introduction to the basic concepts, the book goes on discussing the basic methods of parallelism exploitation in computation through vector processing, super scalar and VLIW processing, array processing, associative processing, systolic algorithms, and dataflow computation. After introducing interconnection networks, it discusses parallel algorithms for sorting, Fourier transform, matrix algebra, and graph theory. The second part focuses on basics and selected theoretical issues of distributed processing. Architectures and

algorithms have been dealt in an integrated way throughout the book. The last chapter focuses on the different paradigms and issues of high performance computing making the reading more interesting. This book is meant for the senior level undergraduate and postgraduate students of computer science and engineering, and information technology. The book is also useful for the postgraduate students of computer science and computer application.

Euro-Par 2019: Parallel Processing - Ramin Yahyapour 2019-08-19

This book constitutes the proceedings of the 25th International Conference on Parallel and Distributed Computing, Euro-Par 2019, held in Göttingen, Germany, in August 2019. The 36 full papers presented in this volume were carefully reviewed and selected from 142 submissions. They deal with parallel and distributed computing in general, focusing on support tools and environments; performance and power modeling, prediction and evaluation; scheduling and load balancing; high performance architectures and compilers; data management, analytics and deep learning; cluster and cloud computing; distributed systems and algorithms; parallel and distributed programming, interfaces, and languages; multicore and manycore parallelism; theory and algorithms for parallel computation and networking; parallel numerical methods and applications; accelerator computing; algorithms and systems for bioinformatics; and algorithms and systems for digital humanities.

Euro-Par 2018: Parallel Processing Workshops - Gabriele Mencagli 2018-12-31

This book constitutes revised selected papers from the workshops held at 24th International

Conference on Parallel and Distributed Computing, Euro-Par 2018, which took place in Turin, Italy, in August 2018. The 64 full papers presented in this volume were carefully reviewed and selected from 109 submissions. Euro-Par is an annual, international conference in Europe, covering all aspects of parallel and distributed processing. These range from theory to practice, from small to the largest parallel and distributed systems and infrastructures, from fundamental computational problems to full-edged applications, from architecture, compiler, language and interface design and implementation to tools, support infrastructures, and application performance aspects.

2019 IEEE Intl Conf on Parallel and Distributed Processing with Applications, Big Data and Cloud Computing, Sustainable Computing and Communications, Social Computing and Networking (ISPA BDCloud SocialCom SustainCom) - IEEE Staff 2019-12-16

The IEEE ISPA 2019(17th IEEE International Symposium on Parallel and Distributed Processing with Applications) is a forum for presenting leading work on parallel and distributed computing and networking, including architecture, compilers, runtime systems, applications, reliability, security, parallel programming models and much more During the symposium, scientists and engineers in both academia and industry are invited to present their work on concurrent and parallel systems (multicore, multithreaded, heterogeneous, clustered systems, distributed systems, grids, clouds, and large scale machines)

Euro-Par 2019: Parallel Processing - Ramin Yahyapour 2019

This book constitutes the

proceedings of the 25th International Conference on Parallel and Distributed Computing, Euro-Par 2019, held in Göttingen, Germany, in August 2019. The 36 full papers presented in this volume were carefully reviewed and selected from 142 submissions. They deal with parallel and distributed computing in general, focusing on support tools and environments; performance and power modeling, prediction and evaluation; scheduling and load balancing; high performance architectures and compilers; data management, analytics and deep learning; cluster and cloud computing; distributed systems and algorithms; parallel and distributed programming, interfaces, and languages; multicore and manycore parallelism; theory and algorithms for parallel computation and networking; parallel numerical methods and applications; accelerator computing; algorithms and systems for bioinformatics; and algorithms and systems for digital humanities.

TORUS 1 - Toward an Open Resource Using Services - Dominique Laffly 2020-04-09

This book, presented in three volumes, examines environmental disciplines in relation to major players in contemporary science: Big Data, artificial intelligence and cloud computing. Today, there is a real sense of urgency regarding the evolution of computer technology, the ever-increasing volume of data, threats to our climate and the sustainable development of our planet. As such, we need to reduce technology just as much as we need to bridge the global socio-economic gap between the North and South; between universal free access to data (open data) and free software (open source). In this book, we pay particular attention to certain environmental

subjects, in order to enrich our understanding of cloud computing. These subjects are: erosion; urban air pollution and atmospheric pollution in Southeast Asia; melting permafrost (causing the accelerated release of soil organic carbon in the atmosphere); alert systems of environmental hazards (such as forest fires, prospective modeling of socio-spatial practices and land use); and web fountains of geographical data. Finally, this book asks the question: in order to find a pattern in the data, how do we move from a traditional computing model-based world to pure mathematical research? After thorough examination of this topic, we conclude that this goal is both transdisciplinary and achievable.

Euro-Par 2020: Parallel Processing - Maciej Malawski 2020-08-18

This book constitutes the proceedings of the 26th International Conference on Parallel and Distributed Computing, Euro-Par 2020, held in Warsaw, Poland, in August 2020. The conference was held virtually due to the coronavirus pandemic. The 39 full papers presented in this volume were carefully reviewed and selected from 158 submissions. They deal with parallel and distributed computing in general, focusing on support tools and environments; performance and power modeling, prediction and evaluation; scheduling and load balancing; high performance architectures and compilers; data management, analytics and machine learning; cluster, cloud and edge computing; theory and algorithms for parallel and distributed processing; parallel and distributed programming, interfaces, and languages; multicore and manycore parallelism; parallel numerical methods and applications; and accelerator computing.

Cloud Computing and Distributed Systems - Kai Hwang 2018-02-01
Cloud Computing and Distributed Systems

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