Emerging Research In Cloud Distributed Computing Systems Advances In Systems Analysis Software Engineering And High Performance Computing

This unique volume explores cutting-edge management approaches to developing complex software that is efficient, scalable, sustainable, and suitable for distributed environments. Practical insights are offered by an international selection of pre-eminent authorities, including case studies, best practices, and balanced corporate analyses. Emphasis is placed on the use of the latest software technologies and frameworks for life-cycle methods, including the design, implementation and testing stages of software development. Topics and features: · Reviews approaches for reusability, cost and time estimation, and for functional size measurement of distributed software applications · Discusses the core characteristics of a large-scale defense system, and the design of software project management (SPM) as a service · Introduces the 3PR framework, research on crowdsourcing software development, and an innovative approach to modeling large-scale multi-agent software systems · Examines a system architecture for ambient assisted living, and an approach to cloud migration and management assessment · Describes a software error proneness mechanism, a novel Scrum process for use in the defense domain, and an ontology annotation for SPM in distributed environments · Investigates the benefits of agile project management for higher education institutions, and SPM that combines software and data engineering This important text/reference is essential reading for project managers and software engineers involved in developing software for distributed computing environments. Students and researchers interested in SPM technologies and frameworks will also find the work to be an invaluable resource. Prof. Zaigham Mahmood is a Senior Technology Consultant at Debesis Education UK and an Associate Lecturer (Research) at the University of Derby, UK. He also holds positions as Foreign Professor at NUST and IIU in Islamabad, Pakistan, and Professor Extraordinaire at the North West University Potchefstroom, South Africa.

Emerging Research in Cloud Distributed Computing SystemsIGI Global

The primary purpose of this book is to capture the state-of-the-art in Cloud Computing technologies and applications. The book will also aim to identify potential research directions and technologies that will facilitate creation a global market-place of cloud computing services supporting scientific, industrial, business, and consumer applications. We expect the book to serve as a reference for larger audience such as systems architects, practitioners, developers, new researchers and graduate level students. This area of research is relatively recent, and as such has no existing reference book that addresses it. This book will be a timely contribution to a field that is gaining considerable research interest, momentum, and is expected to be of increasing interest to commercial developers. The book is targeted for professional computer science developers and graduate students especially at Masters level. As Cloud Computing is recognized as one of the top five emerging technologies that will have a major impact on the quality of science and society over the next 20 years, its knowledge will help position our readers at the forefront of the field.

This book constitutes, together with LNCS 6987 and LNCS 6988, the refereed proceedings of the International Conference on Web Information Systems and Mining, WISM 2011, held in Taiyuan, China, in September 2011. The 112 revised full papers presented in the three volumes were carefully reviewed and selected from 472 submissions. The 61 papers presented in this volume are organized in topical sections on applications of artificial intelligence; applications of computational intelligence; automated problem solving; brain models/cognitive science; data mining and knowledge discovering; expert and decision support systems; fuzzy logic and soft computing; intelligent agents and systems; intelligent control; intelligent image processing; intelligent scheduling; intelligent signal processing; natural language processing; nature computation; neural computation; pattern recognition; rough set theory.

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

Traditional computing concepts are maturing into a new generation of cloud computing systems with wide-spread global applications. However, even as these systems continue to expand, they are accompanied by overall performance degradation and wasted resources. Emerging Research in Cloud Distributed Computing Systems covers the latest innovations in resource management, control and monitoring applications, and security of cloud technology. Compiling and analyzing current trends, technological concepts, and future directions of computing systems, this publication is a timely resource for practicing engineers, technologists, researchers, and advanced students interested in the domain of cloud computing.

Businesses constantly face online hacking threats or security breaches in their online mainframe that expose sensitive information to the wrong audience. Companies look to store their data in a separate location, distancing the availability of the information and reducing the risk of data breaches. Modern organizations need to remain vigilant against insider attacks, cloud computing risks, and security flaws within their mainframe. Detection and Mitigation of Insider Attacks in a Cloud Infrastructure: Emerging Research and Opportunities is an essential reference source that discusses maintaining a secure management of sensitive data, and intellectual property and provides a robust security algorithm on consumer data. Featuring research on topics such as public cryptography, security principles, and trustworthy computing, this book is ideally designed for IT professionals, business

managers, researchers, students, and professionals seeking coverage on preventing and detecting the insider attacks using trusted cloud computing techniques.

Modern society requires a specialized, persistent approach to IT service delivery. Cloud computing offers the most logical answer through a highly dynamic and virtualized resource made available by an increasing number of service providers. Advanced Research on Cloud Computing Design and Applications shares the latest high quality research results on cloud computing and explores the broad applicability and scope of these trends on an international scale, venturing into the hot-button issue of IT services evolution and what we need to do to be prepared for future developments in cloud computing. This book is an essential reference source for researchers and practitioners in the field of cloud computing, as well as a guide for students, academics, or anyone seeking to learn more about advancement in IT services. This publication features chapters covering a broad range of relevant topics, including cloud computing for e-government, cloud computing in the public sector, security in the cloud, hybrid clouds and outsourced data, IT service personalization, and supply chain in the cloud.

P2P, Grid, Cloud and Internet computing technologies have been very fast established as breakthrough paradigms for solving complex problems by enabling aggregation and sharing of an increasing variety of distributed computational resources at large scale. The aim of this volume is to provide latest research findings, innovative research results, methods and development techniques from both theoretical and practical perspectives related to P2P, Grid, Cloud and Internet computing as well as to reveal synergies among such large scale computing paradigms. This proceedings volume presents the results of the 11th International Conference on P2P, Parallel, Grid, Cloud And Internet Computing (3PGCIC-2016), held November 5-7, 2016, at Soonchunhyang University, Asan, Korea

This proceedings volume covers the proceedings of ERCICA 2015. ERCICA provides an interdisciplinary forum for researchers, professional engineers and scientists, educators, and technologists to discuss, debate and promote research and technology in the upcoming areas of Computing, Information, Communication and their Applications. The contents of this book cover emerging research areas in fields of Computing, Information, Communication and Applications. This will prove useful to both researchers and practicing engineers.

This book introduces the reader to the fundamentals of contemporary, emerging and future technologies and services in Internet computing. It covers essential concepts such as distributed systems architectures and web technologies, contemporary paradigms such as cloud computing and the Internet of things, and emerging technologies like distributed ledger technologies and fog computing. The book also highlights the interconnection and recombination of these Internet-based technologies, which together form a critical information infrastructure with major impacts on individuals, organizations, governments, economies, and society as a whole. Intended as a textbook for upper undergraduate and graduate classes, it features a wealth of examples, learning goals and summaries for every chapter, numerous recommendations for further reading, and questions for checking students' comprehension. A dedicated author website offers additional teaching material and more elaborate examples. Accordingly, the book enables students and young professionals in IT-related fields to familiarize themselves with the Internet's basic mechanisms, and with the most promising Internet-based technologies of our time.

In recent years, our world has experienced a profound shift and progression in available computing and knowledge sharing innovations. These emerging advancements have developed at a rapid pace, disseminating into and affecting numerous aspects of contemporary society. This has created a pivotal need for an innovative compendium encompassing the latest trends, concepts, and issues surrounding this relevant discipline area. During the past 15 years, the Encyclopedia of Information Science and Technology has become recognized as one of the landmark sources of the latest knowledge and discoveries in this discipline. The Encyclopedia of Information Science and Technology, Fourth Edition is a 10-volume set which includes 705 original and previously unpublished research articles covering a full range of perspectives, applications, and techniques contributed by thousands of experts and researchers from around the globe. This authoritative encyclopedia is an all-encompassing, well-established reference source that is ideally designed to disseminate the most forward-thinking and diverse research findings. With critical perspectives on the impact of information science management and new technologies in modern settings, including but not limited to computer science, education, healthcare, government, engineering, business, and natural and physical sciences, it is a pivotal and relevant source of knowledge that will benefit every professional within the field of information science and technology and is an invaluable addition to every academic and corporate library.

The ubiquity of technology has not only brought the need for computer knowledge to every aspect of the modern business world; it has also increased our need to safely store the data we are now creating at a rate never experienced before. Delivery and Adoption of Cloud Computing Services in Contemporary Organizations brings together the best practices for storing massive amounts of data. Highlighting ways cloud services can work effectively in production and in real time, this book is an essential reference source for professionals and academics of various disciplines, such as computer science, consulting, information technology, information and communication sciences, healthcare, and finance.

This book constitutes the refereed proceedings of the 15th International Conference on Economics of Grids, Clouds, Systems, and Services, GECON 2018, held in Pisa, Italy, in September 2018. The 21 full papers and 9 short papers presented together with 1 invited talk were carefully reviewed and selected from 40 submissions. This GECON 2018 proceedings was structured in three special sessions on selected topics, namely: IT service ecosystems enabled through emerging digital technologies; machine learning, cognitive systems and data science for system management; and blockchain technologies and economics.

This unique book introduces a variety of techniques designed to represent, enhance and empower multi-disciplinary and multi-institutional machine learning research in healthcare informatics. Providing a unique compendium of current and emerging machine learning paradigms for healthcare informatics, it reflects the diversity, complexity, and the depth and breadth of this multi-disciplinary area. Further, it describes techniques for applying machine learning within organizations and explains how to evaluate the efficacy, suitability, and efficiency of such applications. Featuring illustrative case studies, including how chronic disease is being redefined through patient-led data learning, the book offers a guided tour of machine learning algorithms, architecture design, and applications of learning in healthcare challenges.

This book presents the latest research findings, as well as innovative theoretical and practical research results, methods and development techniques related to P2P, grid, cloud and Internet computing. It also reveals the synergies among such large scale computing paradigms.

P2P, Grid, Cloud and Internet computing technologies have rapidly become established as breakthrough paradigms for solving complex problems by enabling aggregation and sharing of an increasing variety of distributed computational resources on a large scale. Grid computing originated as a paradigm for high-performance computing, offering an alternative to expensive supercomputers through different forms of large-scale distributed computing. P2P computing emerged as a new paradigm following on from client-server and web-based computing and has proved useful in the development of social networking, B2B (Business to Business), B2C (Business to Consumer), B2G (Business to Government), and B2E (Business to Employee). Cloud computing has been described as a "computing paradigm where the boundaries of computing are determined by economic rationale rather than technical limits". Cloud computing has fast become the computing paradigm with applicability and adoption in all domains and providing utility computing at large scale. Lastly, Internet computing is the basis of any large-scale distributed computing paradigm; it has very quickly developed into a vast and flourishing field with enormous impact on today's information societies and serving as a universal platform comprising a large variety of computing forms such as grid, P2P, cloud and

mobile computing.

Engineering education methods and standards are important features of engineering programs that should be carefully designed both to provide students and stakeholders with valuable, active, integrated learning experiences, and to provide a vehicle for assessing program outcomes. With the driving force of the globalization of the engineering profession, standards should be developed for mutual recognition of engineering education across the world, but it is proving difficult to achieve. The Handbook of Research on Engineering Education in a Global Context provides innovative insights into the importance of quality training and preparation for engineering students. It explores the common and current problems encountered in areas such as quality and standards, management information systems, innovation and enhanced learning technologies in education, as well as the challenges of employability, entrepreneurship, and diversity. This publication is vital reference source for science and engineering educators, engineering professionals, and educational administrators interested in topics centered on the education of students in the field of engineering.

This book presents original contributions on the theories and practices of emerging Internet, data and Web technologies and their applicability in businesses, engineering and academia, focusing on advances in the life-cycle exploitation of data generated from the digital ecosystem data technologies that create value, e.g. for businesses, toward a collective intelligence approach. The Internet has become the most proliferative platform for emerging large-scale computing paradigms. Among these, data and web technologies are two of the most prominent paradigms and are found in a variety of forms, such as data centers, cloud computing, mobile cloud, and mobile Web services. These technologies together create a digital ecosystem whose cornerstone is the data cycle, from capturing to processing, analyzing and visualizing. The investigation of various research and development issues in this digital ecosystem are made more pressing by the ever-increasing requirements of real-world applications that are based on storing and processing large amounts of data. The book is a valuable resource for researchers, software developers, practitioners and students interested in the field of data and web technologies.

This book focuses on the development and implementation of cloud-based, complex software that allows parallelism, fast processing, and real-time connectivity. Software engineering (SE) is the design, development, testing, and implementation of software applications, and this discipline is as well developed as the practice is well established whereas the Cloud Software Engineering (CSE) is the design, development, testing, and continuous delivery of service-oriented software systems and applications (Software as a Service Paradigm). However, with the emergence of the highly attractive cloud computing (CC) paradigm, the tools and techniques for SE are changing. CC provides the latest software development environments and the necessary platforms relatively easily and inexpensively. It also allows the provision of software applications equally easily and on a pay-as-you-go basis. Business requirements for the use of software are also changing and there is a need for applications in big data analytics, parallel computing, AI, natural language processing, and biometrics, etc. These require huge amounts of computing power and sophisticated data management mechanisms, as well as device connectivity for Internet of Things (IoT) environments. In terms of hardware, software, communication, and storage, CC is highly attractive for developing complex software that is rapidly becoming essential for all sectors of life, including commerce, health, education, and transportation. The book fills a gap in the SE literature by providing scientific contributions from researchers and practitioners, focusing on frameworks, methodologies, applications, benefits and inherent challenges/barriers to engineering software using the CC paradigm.

The internet of things (IoT) is quickly growing into a large industry with a huge economic impact expected in the near future. However, the users' needs go beyond the existing web-like services, which do not provide satisfactory intelligence levels. Ambient intelligence services in IoT environments is an emerging research area that can change the way that technology and services are perceived by the users. Ambient Intelligence Services in IoT Environments: Emerging Research and Opportunities is a unique source that systemizes recent trends and advances for service development with such key technological enablers of modern ICT as ambient intelligence, IoT, web of things, and cyber-physical systems. The considered concepts and models are presented using a smart spaces approach with a particular focus on the Smart-M3 platform, which is now shaping into an open source technology for creating ontology-based smart spaces and is shifting towards the development of web of things applications and socio-cyber-physical systems. Containing coverage on a broad range of topics such as fog computing, smart environments, and virtual reality, multitudes of researchers, students, academicians, and professionals will benefit from this timely reference.

High-performance computing (HPC) describes the use of connected computing units to perform complex tasks. It relies on parallelization techniques and algorithms to synchronize these disparate units in order to perform faster than a single processor could, alone. Used in industries from medicine and research to military and higher education, this method of computing allows for users to complete complex data-intensive tasks. This field has undergone many changes over the past decade, and will continue to grow in popularity in the coming years. Innovative Research Applications in Next-Generation High Performance Computing aims to address the future challenges, advances, and applications of HPC and related technologies. As the need for such processors increases, so does the importance of developing new ways to optimize the performance of these supercomputers. This timely publication provides comprehensive information for researchers, students in ICT, program developers, military and government organizations, and business professionals.

"This book is a collection of widespread research providing relevant theoretical frameworks and research findings on the applications of distributed computing innovations to the business, engineering and science fields"--Provided by publisher. As industries are rapidly being digitalized and information is being more heavily stored and transmitted online, the security of information has become a top priority in securing the use of online networks as a safe and effective platform. With the vast and diverse potential of artificial intelligence (AI) applications, it has become easier than ever to identify cyber vulnerabilities, potential threats, and the identification of solutions to these unique problems. The latest tools and technologies for AI applications have untapped potential that conventional systems and human security systems cannot meet, leading AI to be a frontrunner in the fight against malware, cyber-attacks, and various security issues. However, even with the tremendous progress AI has made within the sphere of security, it's important to understand the impacts, implications, and critical issues and challenges of AI applications along with the many benefits and emerging trends in this essential field of security-based research. Research Anthology on Artificial Intelligence Applications in Security seeks

to address the fundamental advancements and technologies being used in AI applications for the security of digital data and information. The included chapters cover a wide range of topics related to AI in security stemming from the development and design of these applications, the latest tools and technologies, as well as the utilization of AI and what challenges and impacts have been discovered along the way. This resource work is a critical exploration of the latest research on security and an overview of how AI has impacted the field and will continue to advance as an essential tool for security, safety, and privacy online. This book is ideally intended for cyber security analysts, computer engineers, IT specialists, practitioners, stakeholders, researchers, academicians, and students interested in AI applications in the realm of security research.

Advancements in medical and healthcare technologies pave the way to improving treatments and diagnoses while also streamlining processes to ensure the highest quality care is given to patients. In the last few decades, revolutionary technology has radically progressed the healthcare industry by increasing life expectancy and reducing human error. Advanced Methodologies and Technologies in Medicine and Healthcare provides emerging research on bioinformatics, medical ethics, and clinical science in modern applications and settings. While highlighting the challenges medical practitioners and healthcare professionals face when treating patients and striving to optimize their processes, the book shows how revolutionary technologies and methods are vastly improving how healthcare is implemented globally. This book is an important resource for medical researchers, healthcare administrators, doctors, nurses, biomedical engineers, and students looking for comprehensive research on the advancements in healthcare technologies.

As technology continues to evolve, the popularity of mobile computing has become inherent within today's society. With the majority of the population using some form of mobile device, it has become increasingly important to develop more efficient cloud platforms. Modern Software Engineering Methodologies for Mobile and Cloud Environments investigates emergent trends and research on innovative software platforms in mobile and cloud computing. Featuring state-of-the-art software engineering methods, as well as new techniques being utilized in the field, this book is a pivotal reference source for professionals, researchers, practitioners, and students interested in mobile and cloud environments.

The application of proper ethical systems and education programs is a vital concern in the medical industry. When healthcare professionals are held to the highest moral and training standards, patient care is improved. Healthcare Ethics and Training: Concepts, Methodologies, Tools, and Applications is a comprehensive source of academic research material on methods and techniques for implementing ethical standards and effective education initiatives in clinical settings. Highlighting pivotal perspectives on topics such as e-health, organizational behavior, and patient rights, this multi-volume work is ideally designed for practitioners, upper-level students, professionals, researchers, and academics interested in the latest developments within the healthcare industry.

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. Applying Integration Techniques and Methods in Distributed Systems is a critical scholarly publication that defines the current state of distributed systems, determines further goals, and presents architectures and service frameworks to achieve highly integrated distributed systems and presents solutions to integration and efficient management challenges faced by current and future distributed systems. Highlighting topics such as multimedia, programming languages, and smart environments, this book is ideal for system administrators, integrators, designers, developers, researchers, and academicians.

In the computer science industry, high levels of performance remain the focal point in software engineering. This quest has made current systems exceedingly complex, as practitioners strive to discover novel approaches to increase the capabilities of modern computer structures. A prevalent area of research in recent years is scalable transaction processing and its usage in large databases and cloud computing. Despite its popularity, there remains a need for significant research in the understanding of scalability and its performance within distributed databases. Handling Priority Inversion in Time-Constrained Distributed Databases provides emerging research exploring the theoretical and practical aspects of database transaction processing frameworks and improving their performance using modern technologies and algorithms. Featuring coverage on a broad range of topics such as consistency mechanisms, real-time systems, and replica management, this book is ideally designed for IT professionals, computing specialists, developers, researchers, data engineers, executives, academics, and students seeking research on current trends and developments in distributed computing and databases.

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.

Cloud computing has proven to be a successful paradigm of service-oriented computing, and has revolutionized the way computing infrastructures are abstracted and used. By means of cloud computing technology, massive data can be managed effectively and efficiently to support various aspects of problem solving and decision making. Managing Big Data in Cloud Computing Environments explores the latest advancements in the area of data management and analysis in the cloud. Providing timely, research-based information relating to data storage, sharing, extraction, and indexing in cloud systems, this publication is an ideal reference source for graduate students, IT specialists, researchers, and professionals working in the areas of data and knowledge engineering.

"This book focuses on network management and traffic engineering for Internet and distributed computing technologies, as well as present emerging technology trends and advanced platforms"--Provided by publisher.

Agile is a relatively recent methodology used in the development process of a project. Therefore, it is important to share new emerging knowledge with researchers and professionals interested in adopting an agile mindset. Emerging Innovations in Agile Software Development focuses on the use of agile methodologies to manage, design, develop, test and maintain software projects. Emphasizing research-based solutions for contemporary software development, this publication is designed for use by software developers, researchers, and graduate-

level students in software engineering and project management programs.

This book constitutes the refereed proceedings of the First International Conference on Intelligent, Secure, and Dependable Systems in Distributed and Cloud Environments, ISDDC 2017, held in Vancouver, BC, Canada, in October 2017.The 12 full papers presented together with 1 short paper were carefully reviewed and selected from 43 submissions. This book also contains 3 keynote talks and 2 tutorials. The contributions included in this proceedings cover many aspects of theory and application of effective and efficient paradigms, approaches, and tools for building, maintaining, and managing secure and dependable systems and infrastructures, such as botnet detection, secure cloud computing and cryptosystems, IoT security, sensor and social network security, behavioral systems and data science, and mobile computing.

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.

Biotechnology can be defined as the manipulation of biological process, systems, and organisms in the production of various products. With applications in a number of fields such as biomedical, chemical, mechanical, and civil engineering, research on the development of biologically inspired materials is essential to further advancement. Biotechnology: Concepts, Methodologies, Tools, and Applications is a vital reference source for the latest research findings on the application of biotechnology in medicine, engineering, agriculture, food production, and other areas. It also examines the economic impacts of biotechnology use. Highlighting a range of topics such as pharmacogenomics, biomedical engineering, and bioinformatics, this multi-volume book is ideally designed for engineers, pharmacists, medical professionals, practitioners, academicians, and researchers interested in the applications of biotechnology.

Real-time systems are of importance to a large number of university laboratories and research institutes worldwide, and without the proper integration of real-time into distributed computing, institutions simply could not function. Achieving Real-Time in Distributed Computing: From Grids to Clouds offers over 400 accounts from a wide range of specific research efforts. Major focus is given to the need for methodologies, tools, and architectures for complex distributed systems that address the practical issues of performance guarantees, timed execution, real-time management of resources, synchronized communication under various load conditions, satisfaction of QoS constraints, and dealing with the trade-offs between these aspects.

Cloud computing presents a promising approach for implementing scalable information and communications technology systems for private and public, individual, community, and business use. Achieving Federated and Self-Manageable Cloud Infrastructures: Theory and Practice overviews current developments in cloud computing concepts, architectures, infrastructures and methods, focusing on the needs of small to medium enterprises. The topic of cloud computing is addressed on two levels: the fundamentals of cloud computing and its impact on the IT world; and an analysis of the main issues regarding the cloud federation, autonomic resource management, and efficient market mechanisms, while supplying an overview of the existing solutions able to solve them. This publication is aimed at both enterprise business managers and research and academic audiences alike.

"This book compiles recent research trends and practical issues in the fields of distributed computing and Internet technologies, providing advancements on emerging technologies that aim to support the effective design and implementation of service-oriented networks, future Internet environments and building management frameworks"--

Global networks, which are the primary pillars of the modern manufacturing industry and supply chains, can only cope with the new challenges, requirements and demands when supported by new computing and Internet-based technologies. Cloud Manufacturing: Distributed Computing Technologies for Global and Sustainable Manufacturing introduces a new paradigm for scalable service-oriented sustainable and globally distributed manufacturing systems. The eleven chapters in this book provide an updated overview of the latest technological development and applications in relevant research areas. Following an introduction to the essential features of Cloud Computing, chapters cover a range of methods and applications such as the factors that actually affect adoption of the Cloud Computing technology in manufacturing companies and new geometrical simplification method to stream 3-Dimensional design and manufacturing data via the Internet. This is further supported case studies and real life data for Waste Electrical and Electronic Equipment (WEEE) remanufacturing. This compilation of up to date research and literature can be used as a textbook or reference for mechanical, manufacturing, and computer engineering graduate students and researchers for efficient utilization, deployment and development of distributed and Cloud manufacturing systems, services and applications.

Text analysis tools aid in extracting meaning from digital content. As digital text becomes more and more complex, new techniques are needed to understand conceptual structure. Concept Parsing Algorithms (CPA) for Textual Analysis and Discovery: Emerging Research and Opportunities provides an innovative perspective on the application of algorithmic tools to study unstructured digital content. Highlighting pertinent topics such as semantic tools, semiotic systems, and pattern detection, this book is ideally designed for researchers, academics, students, professionals, and practitioners interested in developing a better understanding of digital text analysis.

"This book is a vital compendium of chapters on the latest research within the field of distributed computing, capturing trends in the design and development of Internet and distributed computing systems that leverage autonomic principles and techniques"--Provided by publisher.