Video Processing In The Cloud

This book constitutes the refereed proceedings of the 13th International Conference on Asia-Pacific Digital Libraries, ICADL 2011, held in Beijing, China, in October 2011. The 33 revised full papers, 8 short papers and 9 poster papers presented were carefully reviewed and selected from 136 submissions. The topics covered are digital archives and preservation; information mining and extraction; medata, catalogue; distributed repositories and cloud computing; social network and personalized service; mobile services and electronic publishing; multimedia digital libraries; information retrieval; and tools and systems for digital library.

This book constitutes the refereed conference proceedings of the 8th International Conference on Multi-disciplinary Trends in Artificial Intelligence, MIWAI 2014, held in Bangalore, India, in December 2014. The 22 revised full papers were carefully reviewed and selected from 44 submissions. The papers feature a wide range of topics covering both theory, methods and tools as well as their diverse applications in numerous domains.

As computer systems evolve, the volume of data to be processed increases significantly, either as a consequence of the expanding amount of available information, or due to the possibility of performing highly complex operations that were not feasible in the past. Nevertheless, tasks that depend on the manipulation of large amounts of information are still performed at large computational cost, i.e., either the processing time will be large, or they will require intensive use of computer resources. In this scenario, the efficient use of available computational resources is paramount, and creates a demand for systems that can optimize the use of resources in relation to the amount of data to be processed. This problem becomes increasingly critical when the volume of information to be processed is variable, i.e., there is a seasonal variation of demand. Such demand variations are caused by a variety of factors, such as an unanticipated burst of client requests, a time-critical simulation, or high volumes of simultaneous video uploads, e.g. as a consequence of a public contest. In these cases, there are moments when the demand is very low (resources are almost idle) while, conversely, at other moments, the processing demand exceeds the resources capacity. Moreover, from an economical perspective, seasonal demands do not justify a massive investment in infrastructure, just to provide enough computing power for peak situations. In this light, the ability to build adaptive systems, capable of using on demand resources provided by Cloud Computing infrastructures is very attractive.

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This book discusses harnessing the real power of cloud computing in optimization problems, presenting state-of-the-art computing paradigms, advances in applications, and challenges concerning both the theories and applications of cloud computing in optimization with a focus on diverse fields like the Internet of Things, fog-assisted cloud computing, and big data. In real life, many problems – ranging from social science to engineering sciences – can be identified as complex optimization problems. Very often these are intractable, and as a result researchers from industry as well as the academic community are concentrating their efforts on developing methods of addressing them. Further, the cloud computing paradigm plays a vital role in many areas of interest, like resource allocation, scheduling, energy management, virtualization, and security, and these areas are intertwined with many optimization problems. Using illustrations and figures, this book offers students and researchers a clear overview of the concepts and practices of cloud computing and its use in numerous complex optimization problems.

Computer Vision and Robotic is one of the most challenging areas of 21st century. Its application ranges from Agriculture to Medicine, Household applications to Humanoid, Deep-sea-application to Space application, and Industry applications to Man-less-plant. Today's technologies demand to produce intelligent machine, which are enabling applications in various domains and services. Robotics is one such area which encompasses number of technology in it and its application is widespread. Computational vision or Machine vision is one of the most challenging tools for the robot to make it intelligent. This volume covers chapters from various areas of Computational Vision such as Image and Video Coding and Analysis, Image Watermarking, Noise Reduction and Cancellation, Block Matching and Motion Estimation, Tracking of Deformable Object using Steerable Pyramid Wavelet Transformation, Medical Image Fusion, CT and MRI Image Fusion based on Stationary Wavelet Transform. The book also covers articles from applications of soft computing techniques such as Target Searching and Tracking using Particle Swarm Optimization, PSO-based Functional Artificial Neural Network, etc. The book also covers article from the areas of Robotics such as Solar Power Robot Vehicle, Multi Robot Area Exploration, Intelligent Driving System based on Video Sequencing, Emotion Recognition using MLP Network, Identifying the Unstructured Environment.

Traditional classroom learning environments are quickly becoming a thing of the past as research continues to support the integration of learning outside of a structured school environment. Blended learning, in particular, offers the best of both worlds, combining classroom learning with mobile and web-based learning environments. Blended Learning: Concepts, Methodologies, Tools, and Applications explores emerging trends, case studies, and digital tools for hybrid learning in modern educational settings. Focusing on the latest technological innovations as well as effective pedagogical practice, this critical multi-volume set is a comprehensive resource for instructional designers, educators, administrators, and graduate-level students in the field of education.

This proceedings volume brings together some 189 peer-reviewed papers presented at the International Conference on Information Technology and Computer Application Engineering, held 27-28 August 2013, in Hong Kong, China. Specific topics under consideration include Control, Robotics, and Automation, Information Technology, Intelligent Computing and Telecommunication, Computer Science and Engineering, Computer Education and Application and other related topics. This book provides readers a state-of-the-art survey of recent innovations and research worldwide in Information Technology and Computer Application Engineering, in so-doing furthering the development and growth of these research fields, strengthening international academic cooperation and communication, and promoting the fruitful exchange of research ideas. This volume will be of interest to professionals and academics alike, serving as a broad overview of the latest advances in the dynamic field of Information Technology and Computer Application Engineering.

This book constitutes the thoroughly refereed post-conference proceedings of five international workshops held in the framework of the 8th Pacific-Rim Symposium on Image and Video Technology, PSIVT 2017, in Wuhan, China, in November 2017: Workshop on Human Behavior Analysis; Workshop on Educational Cloud and Image/Video Enriched

Cloud Services, ECIVECS; Workshop: Vision Meets Graphics, VG; Workshop on Active Electro-Optical Sensors for Aerial and Space Imaging, EO4AS; and Workshop on Computer Vision and Modern Vehicles, CVMV. The 34 revised full papers and 2 posters presented were carefully selected from 103 submissions. The papers cover the full range of state-of-the-art research in image and video technology with topics ranging from well-established areas to novel current trends.

This fully revised and expanded edition gives readers the necessary understanding of image and video processing concepts to contribute to this hot technology's future advances. Important new topics include introductory random processes, image enhancement and analysis, and the new MPEG scalable video coding standard.

The Emergence of Video Processing Tools presents stories of the development of early video tools and systems designed and built by artists and technologists during the late 1960s and 70s. Split over two volumes, the contributors examine the intersection of art and science and look at collaborations among inventors, designers, and artists trying to create new tools to capture and manipulate images in revolutionary ways. The contributors include "video pioneers," who have been active since the emergence of the aesthetic, and technologists, who continue to design, build, and hack media tools. The book also looks at contemporary toolmakers and the relationship between these new tools and the past. Video and media production is a growing area of interest in art and this collection will be an indispensable guide to its origins and its future.

The book is a collection of high-quality peer-reviewed research papers presented in the first International Conference on Signal, Networks, Computing, and Systems (ICSNCS 2016) held at Jawaharlal Nehru University, New Delhi, India during February 25–27, 2016. The book is organized in to two volumes and primarily focuses on theory and applications in the broad areas of communication technology, computer science and information security. The book aims to bring together the latest scientific research works of academic scientists, professors, research scholars and students in the areas of signal, networks, computing and systems detailing the practical challenges encountered and the solutions adopted.

This handbook is organized under three major parts. The first part of this handbook deals with multimedia security for emerging applications. The chapters include basic concepts of multimedia tools and applications, biological and behavioral biometrics, effective multimedia encryption and secure watermarking techniques for emerging applications, an adaptive face identification approach for android mobile devices, and multimedia using chaotic and perceptual hashing function. The second part of this handbook focuses on multimedia processing for various potential applications. The chapter includes a detail survey of image processing based automated glaucoma detection techniques and role of de-noising, recent study of dictionary learning based image reconstruction techniques for analyzing the big medical data, brief introduction of quantum image processing and it applications, a segmentation-less efficient Alzheimer detection approach, object recognition, image enhancements and de-noising techniques for emerging applications, improved performance of image compression approach, and automated detection of eye related diseases using digital image processing. The third part of this handbook introduces multimedia applications. The chapter includes the extensive survey on the role of multimedia in medicine and multimedia forensics classification, a finger based authentication system for e-health security, analysis of recently developed deep learning techniques for emotion and activity recognition. Further, the book introduce a case study on change of ECG according to time for user identification, role of multimedia in big data, cloud computing, the Internet of things (IoT) and blockchain environment in detail for real life applications. This handbook targets researchers, policy makers, programmers and industry professionals in creating new knowledge for developing efficient techniques/framework for multimedia applications. Advanced level students studying computer science, specifically security and multimedia will find this book useful as a reference.

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

As an important enabler for changing people's lives, advances in artificial intelligence (AI)-based applications and services are on the rise, despite being hindered by efficiency and latency issues. By focusing on deep learning as the most representative technique of AI, this book provides a comprehensive overview of how AI services are being applied to the network edge near the data sources, and demonstrates how AI and edge computing can be mutually beneficial. To do so, it introduces and discusses: 1) edge intelligence

and intelligent edge; and 2) their implementation methods and enabling technologies, namely AI training and inference in the customized edge computing framework. Gathering essential information previously scattered across the communication, networking, and AI areas, the book can help readers to understand the connections between key enabling technologies, e.g. a) AI applications in edge; b) AI inference in edge; c) AI training for edge; d) edge computing for AI; and e) using AI to optimize edge. After identifying these five aspects, which are essential for the fusion of edge computing and AI, it discusses current challenges and outlines future trends in achieving more pervasive and fine-grained intelligence with the aid of edge computing.

Data Intensive Computing refers to capturing, managing, analyzing, and understanding data at volumes and rates that push the frontiers of current technologies. The challenge of data intensive computing is to provide the hardware architectures and related software systems and techniques which are capable of transforming ultra-large data into valuable knowledge. Handbook of Data Intensive Computing is written by leading international experts in the field. Experts from academia, research laboratories and private industry address both theory and application. Data intensive computing demands a fundamentally different set of principles than mainstream computing. Data-intensive applications typically are well suited for large-scale parallelism over the data and also require an extremely high degree of fault-tolerance, reliability, and availability. Real-world examples are provided throughout the book. Handbook of Data Intensive Computing is designed as a reference for practitioners and researchers, including programmers, computer and system infrastructure designers, and developers. This book can also be beneficial for business managers, entrepreneurs, and investors.

The book describes the emergence of big data technologies and the role of Spark in the entire big data stack. It compares Spark and Hadoop and identifies the shortcomings of Hadoop that have been overcome by Spark. The book mainly focuses on the in-depth architecture of Spark and our understanding of Spark RDDs and how RDD complements big data's immutable nature, and solves it with lazy evaluation, cacheable and type inference. It also addresses advanced topics in Spark, starting with the basics of Scala and the core Spark framework, and exploring Spark data frames, machine learning using Mllib, graph analytics using Graph X and real-time processing with Apache Kafka, AWS Kenisis, and Azure Event Hub. It then goes on to investigate Spark using PySpark and R. Focusing on the current big data stack, the book examines the interaction with current big data tools, with Spark being the core processing layer for all types of data. The book is intended for data engineers and scientists working on massive datasets and big data technologies in the cloud. In addition to industry professionals, it is helpful for aspiring data processing professionals and students working in big data processing and cloud computing environments.

Recent technology trends involving the combination of mobile networks and cloud computing have offered new chances for mobile network providers to use specific carrier-cloud services. These advancements will enhance the utilization of the mobile cloud in industry and corporate settings. Mobile Networks and Cloud Computing Convergence for Progressive Services and Applications is a fundamental source for the advancement of knowledge, application, and practice in the interdisciplinary areas of mobile network and cloud computing. By addressing innovative concepts and critical issues, this book is essential for researchers, practitioners, and students interested in the emerging field of vehicular wireless networks.

PREVIOUS EDITIONThis textbook introduces the "Fundamentals of Multimedia", addressing real issues commonly faced in the workplace. The essential concepts are explained in a practical way to enable students to apply their existing skills to address problems in multimedia. Fully revised and updated, this new edition now includes coverage of such topics as 3D TV, social networks, high-efficiency video compression and conferencing, wireless and mobile networks, and their attendant technologies. Features: presents an overview of the key concepts in multimedia, including color science; reviews lossless and lossy compression methods for image, video and audio data; examines the demands placed by multimedia communications on wired and wireless networks; discusses the impact of social media and cloud computing on information sharing and on multimedia content search and retrieval; includes study exercises at the end of each chapter; provides supplementary resources for both students and instructors at an associated website.

With the immense amount of data that is now available online, security concerns have been an issue from the start, and have grown as new technologies are increasingly integrated in data collection, storage, and transmission. Online cyber threats, cyber terrorism, hacking, and other cybercrimes have begun to take advantage of this information that can be easily accessed if not properly handled. New privacy and security measures have been developed to address this cause for concern and have become an essential area of research within the past few years and into the foreseeable future. The ways in which data is secured and privatized should be discussed in terms of the technologies being used, the methods and models for security that have been developed, and the ways in which risks can be detected, analyzed, and mitigated. The Research Anthology on Privatizing and Securing Data reveals the latest tools and technologies for privatizing and securing data across different technologies and industries. It takes a deeper dive into both risk detection and mitigation, including an analysis of cybercrimes and cyber threats, along with a sharper focus on the technologies and methods being actively implemented and utilized to secure data online. Highlighted topics include information governance and privacy, cybersecurity, data protection, challenges in big data, security threats, and more. This book is essential for data analysts, cybersecurity professionals, data scientists, security analysts, IT specialists, practitioners, researchers, academicians, and students interested in the latest trends and technologies for privatizing and securing data.

Big data has presented a number of opportunities across industries. With these opportunities come a number of challenges associated with handling, analyzing, and storing large data sets. One solution to this challenge is cloud computing, which supports a massive storage and computation facility in order to accommodate big data processing. Managing and Processing Big Data in Cloud Computing explores the challenges of supporting big data processing and cloud-based platforms as a proposed solution. Emphasizing a number of crucial topics such as data analytics, wireless networks, mobile clouds, and machine learning, this publication meets the research needs of data analysts, IT professionals, researchers, graduate students, and educators in the areas of data science, computer programming, and IT development.

This book presents revised selected papers from the 14th International Forum on Digital TV and Wireless Multimedia Communication, IFTC 2017, held in Shanghai, China, in November 2017. The 46 papers presented in this volume were carefully reviewed and selected from 122 submissions. They were organized in topical sections named: image processing; machine learning;

quality assessment; social media; telecommunications; video surveillance; virtual reality; computer vision; and image compression.

This book constitutes the thoroughly refereed post-conference proceedings of the 8th Pacific Rim Symposium on Image and Video Technology, PSIVT 2017, held in Wuhan, China, in November 2017. The total of 39 revised papers was carefully reviewed and selected from 91 submissions. The Pacific-Rim Symposium on Image and Video Technology (PSIVT) is a high-quality series of symposia that aim at providing a forum for researchers and practitioners who are being involved, or are contributing to theoretical advances or practical implementations in image and video technology.

This book constitutes the post-proceedings of the 6th International ICST Conference on Mobile Networks and Management, MONAMI 2014, held in Würzburg, Germany, in September 2014. The 22 revised full papers presented were carefully reviewed and selected from 30 submissions. In addition, MONAMI 2014 hosted a workshop on enhanced living environments which also featured 10 papers. The volume is organized thematically in six parts, covering: LTE networks, virtualization and software defined networking, self-organizing networks, energy awareness in wireless networks, wireless networks algorithms and techniques and applications and context-awareness. The workshop on enhanced living environments is organized in thematic sessions on ambient assisted living architectures, human interaction technologies, devises and mobile cloud.

The two volumes IFIP AICT 478 and 479 constitute the refereed post-conference proceedings of the 9th IFIP WG 5.14 International Conference on Computer and Computing Technologies in Agriculture, CCTA 2015, held in Beijing, China, in September 2015. The 122 revised papers included in this volume were carefully selected from 237 submissions. They cover a wide range of interesting theories and applications of information technology in agriculture, including intelligent sensing, monitoring and automatic control technology; key technology and models of the Internet of things; intelligent technology for agricultural equipment; computer vision; computer graphics and virtual reality; computer simulation, optimization and modeling; cloud computing and agricultural applications; agricultural big data; decision support systems and expert systems; 3s technology and precision agriculture; quality and safety of agricultural products; detection and tracing technology; and agricultural electronic commerce technology.

This book consists of eight chapters, five of which provide a summary of the tutorials and workshops organised as part of the cHiPSet Summer School: High-Performance Modelling and Simulation for Big Data Applications Cost Action on "New Trends in Modelling and Simulation in HPC Systems," which was held in Bucharest (Romania) on September 21–23, 2016. As such it offers a solid foundation for the development of new-generation data-intensive intelligent systems. Modelling and simulation (MS) in the big data era is widely considered the essential tool in science and engineering to substantiate the prediction and analysis of complex systems and natural phenomena. MS offers suitable abstractions to manage the complexity of analysing big data in various scientific and engineering domains. Unfortunately, big data problems are not always easily amenable to efficient MS over HPC (high performance computing). Further, MS communities may lack the detailed expertise required to exploit the full potential of HPC solutions, and HPC architects may not be fully aware of specific MS requirements. The main goal of the Summer School was to improve the participants' practical skills and knowledge of the novel HPC-driven models and technologies for big data applications. The trainers, who are also the authors of this book, explained how to design, construct, and utilise the complex MS tools that capture many of the HPC modelling needs, from scalability to fault tolerance and beyond. In the final three chapters, the book presents the first outcomes of the school: new ideas and novel results of the research on security aspects in clouds, first prototypes of the complex virtual models of data in big data streams and a data-intensive computing framework for opportunistic networks. It is a valuable reference resource for those wanting to start working in HPC and big data systems, as well as for advanced researchers and practitioners.

Summarizes the current state and upcoming trends within the area of fog computing Written by some of the leading experts in the field, Fog Computing: Theory and Practice focuses on the technological aspects of employing fog computing in various application domains, such as smart healthcare, industrial process control and improvement, smart cities, and virtual learning environments. In addition, the Machine-to-Machine (M2M) communication methods for fog computing environments are covered in depth. Presented in two parts—Fog Computing Systems and Architectures, and Fog Computing Techniques and Application—this book covers such important topics as energy efficiency and Quality of Service (QoS) issues, reliability and fault tolerance, load balancing, and scheduling in fog computing systems. It also devotes special attention to emerging trends and the industry needs associated with utilizing the mobile edge computing, Internet of Things (IoT), resource and pricing estimation, and virtualization in the fog environments. Includes chapters on deep learning, mobile edge computing, smart grid, and intelligent transportation systems beyond the theoretical and foundational concepts Explores real-time traffic surveillance from video streams and interoperability of fog computing architectures Presents the latest research on data quality in the IoT, privacy, security, and trust issues in fog computing Fog Computing: Theory and Practice provides a platform for researchers, practitioners, and graduate students from computer science, computer engineering, and various other disciplines to gain a deep understanding of fog computing.

The book presents high quality research papers presented by experts in the International Conference on Internet Computing and Information Communications 2012, organized by ICICIC Global organizing committee (on behalf of The CARD Atlanta, Georgia, CREATE Conferences Inc). The objective of this book is to present the latest work done in the field of Internet computing by researchers and industrial professionals across the globe. A step to reduce the research divide between developed and under developed countries.

The proceedings includes cutting-edge research articles from the Fourth International Conference on Signal and Image Processing (ICSIP), which is organised by Dr. N.G.P. Institute of Technology, Kalapatti, Coimbatore. The Conference provides academia and industry to discuss and present the latest technological advances and research results in the fields of theoretical, experimental, and application of signal, image and video processing. The book provides latest and most informative content from engineers and scientists in signal, image and video processing from around the world, which will benefit the future research community to work in a more cohesive and collaborative way.

This book presents the latest innovative research findings, methods, and development techniques related to intelligent social networks and collaborative systems, intelligent networking systems, mobile collaborative systems, and secure intelligent cloud systems. Offering both theoretical and practical perspectives, it also reveals synergies among various paradigms in the multi-disciplinary field of intelligent collaborative systems. With the rapid development of the Internet, we are experiencing a shift from the traditional sharing of information and applications as

the main purpose of the Web to an emergent paradigm that places people at the very centre of networks, making full use of their connections, relations, and collaboration. Social networks also play a major role in the dynamics and structure of intelligent Web-based networking and collaborative systems. Virtual campuses, communities and organizations strongly leverage intelligent networking and collaborative systems through a wide variety of formal and informal electronic relations, such as business-to-business, peer-to-peer, and many types of online collaborative learning interactions, including the emerging e-learning systems. This has resulted in entangled systems that need to be managed efficiently and autonomously. In addition, while the latest powerful technologies based on grid and wireless infrastructures as well as cloud computing are currently greatly enhancing collaborative and networking applications, they are also facing new challenges. The principal purpose of the research and development community is to stimulate research that will lead to the creation of responsive environments for networking and, in the long term, the development of adaptive, secure, mobile, and intuitive intelligent systems for collaborative work and learning.

In today's interconnected society, media, including news, entertainment, and social networking, has increasingly shifted to an online, ubiquitous format. Artists and audiences will achieve the greatest successes by utilizing these new digital tools. Digital Arts and Entertainment: Concepts, Methodologies, Tools, and Applications examines the latest research and findings in electronic media, evaluating the staying power of this increasingly popular paradigm along with best practices for those engaged in the field. With chapters on topics ranging from an introduction to online entertainment to the latest advances in digital media, this impressive three-volume reference source will be important to researchers, practitioners, developers, and students of the digital arts.

Web service technologies are redefining the way that large and small companies are doing business and exchanging information. Due to the critical need for furthering automation, engagement, and efficiency, systems and workflows are becoming increasingly more web-based. Web Services: Concepts, Methodologies, Tools, and Applications is an innovative reference source that examines relevant theoretical frameworks, current practice guidelines, industry standards and standardization, and the latest empirical research findings in web services. Highlighting a range of topics such as cloud computing, quality of service, and semantic web, this multi-volume book is designed for computer engineers, IT specialists, software designers, professionals, researchers, and upper-level students interested in web services architecture, frameworks, and security.

This book constitutes the refereed proceedings of the 19th Symposium on High Performance Computing System, WSCAD 2018, held in São Paulo, Brazil, in October 2018. The 12 revised full papers presented were carefully reviewed and selected out of 61 submissions. The papers included in this book are organized according to the following topics: cloud computing; performance; processors and memory architectures; power and energy.

Cloud Computing and Digital Media: Fundamentals, Techniques, and Applications presents the fundamentals of cloud and media infrastructure, novel technologies that integrate digital media with cloud computing, and real-world applications that exemplify the potential of cloud computing for next-generation digital media. It brings together technologies for media/data communication, elastic media/data storage, security, authentication, cross-network media/data fusion, interdevice media interaction/reaction, data centers, PaaS, SaaS, and more. The book covers resource optimization for multimedia cloud computing—a key technical challenge in adopting cloud computing for various digital media applications. It describes several important new technologies in cloud computing and digital media, including query processing, semantic classification, music retrieval, mobile multimedia, and video transcoding. The book also illustrates the profound impact of emerging health-care and educational applications of cloud computing. Covering an array of state-of-the-art research topics, this book will help you understand the techniques and applications of cloud computing, the interaction/reaction of mobile devices, and digital media/data processing and communication.

As multimedia applications have become part of contemporary daily life, numerous paradigm-shifting technologies in multimedia processing have emerged over the last decade. Substantially updated with 21 new chapters, Multimedia Image and Video Processing, Second Edition explores the most recent advances in multimedia research and applications. This edition presents a comprehensive treatment of multimedia information mining, security, systems, coding, search, hardware, and communications as well as multimodal information fusion and interaction. Clearly divided into seven parts, the book begins with a section on standards, fundamental methods, design issues, and typical architectures. It then focuses on the coding of video and multimedia content before covering multimedia search, retrieval, and management. After examining multimedia security, the book describes multimedia communications and networking and explains the architecture design and implementation for multimedia image and video processing. It concludes with a section on multimedia systems and applications. Written by some of the most prominent experts in the field, this updated edition provides readers with the latest research in multimedia processing and equips them with advanced techniques for the design of multimedia systems.

With the growing popularity of wireless networks in recent years, the need to increase network capacity and efficiency has become more prominent in society. This has led to the development and implementation of heterogeneous networks. Resource Allocation in Next-Generation Broadband Wireless Access Networks is a comprehensive reference source for the latest scholarly research on upcoming 5G technologies for next generation mobile networks, examining the various features, solutions, and challenges associated with such advances. Highlighting relevant coverage across topics such as energy efficiency, user support, and adaptive multimedia services, this book is ideally designed for academics, professionals, graduate students, and professionals interested in novel research for wireless innovations.

As the Web grows and expands into ever more remote parts of the world, the availability of resources over the Internet increases exponentially. Making use of this widely prevalent tool, organizations and individuals can share and store knowledge like never before. Cloud Technology: Concepts, Methodologies, Tools, and Applications investigates the latest research in the ubiquitous Web, exploring the use of applications and software that make use of the Internet's anytime, anywhere availability. By bringing together research and ideas from across the globe, this publication will be of use to computer engineers, software developers, and end users in business, education, medicine, and more.

In bringing to the readers the book 5G Multimedia Communication: Technology, Multiservices and Deployment, the aim is to present current work and direction on the challenging subject of multimedia communications, with theoretical and practical roots. The past two decades have witnessed an extremely fast evolution of mobile cellular network technology. The fifth generation

of mobile wireless systems has achieved the first milestone toward finalization and deployment by 2020. This is vital to the development of future multimedia communications. Also, it is necessary to consider 5G technology from the performance point of view by analyzing network capabilities to the operator and to the end user in terms of data rate, capacity, coverage, energy efficiency, connectivity and latency. The book is divided into three major parts with each part containing four to seven chapters: • Critical enabling technology • Multiservices network • Deployment scenarios The first part discusses enabling technologies, such as green communication, channel modeling, massive and distributed MIMO and ML-based networks. In the second part, different methodologies and standards for multiservices have been discussed. Exclusive chapters have been dedicated to each of the open research challenges such as multimedia operating in 5G environment, network slicing optimization, mobile edge computing, mobile video multicast/broadcast, integrated satellite and drone communication. The third part paved the way to deployment scenarios for different innovative services including integration of a multienergy system in smart cities, intelligent transportation systems, 5G connectivity in the transport sector, healthcare services, 5G edge-based video surveillance and challenges of connectivity for massive IoT in 5G and beyond systems. The book is written by experts in the field who introduced scientific and engineering concepts, covering the 5G multimedia communication areas. The book can be read cover-to-cover or selectively in the areas of interest for the readers. Generally, the book is intended for novel readers who could benefit from understanding general concepts, practitioners who seek guidance into the field and senior-level as well as graduate-level engineering students in understanding the process of today's wireless multimedia communications.

The recent explosion of digital media, online networking, and e-commerce has generated great new opportunities for those Internet-savvy individuals who see potential in new technologies and can turn those possibilities into reality. It is vital for such forward-thinking innovators to stay abreast of all the latest technologies. Web-Based Services: Concepts, Methodologies, Tools, and Applications provides readers with comprehensive coverage of some of the latest tools and technologies in the digital industry. The chapters in this multi-volume book describe a diverse range of applications and methodologies made possible in a world connected by the global network, providing researchers, computer scientists, web developers, and digital experts with the latest knowledge and developments in Internet technologies.