

Digital Pictures Representation Compression And Standards Applications Of Communications Theory

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Image and Video Compression Standards Vasudev Bhaskaran 2012-12-06 New to the Second Edition: offers the latest developments in standards activities (JPEG-LS, MPEG-4, MPEG-7, and H.263) provides a comprehensive review of recent activities on multimedia enhanced processors, multimedia coprocessors, and dedicated processors, including examples from industry. Image and Video Compression Standards: Algorithms and Architectures, Second Edition presents an introduction to the algorithms and architectures that form the underpinnings of the image and video compressions standards, including JPEG (compression of still-images), H.261 and H.263 (video teleconferencing), and MPEG-1 and MPEG-2 (video storage and broadcasting). The next generation of audiovisual coding standards, such as MPEG-4 and MPEG-7, are also briefly described. In addition, the book covers the MPEG and Dolby AC-3 audio coding standards and emerging techniques for image and video compression,

such as those based on wavelets and vector quantization. Image and Video Compression Standards: Algorithms and Architectures, Second Edition emphasizes the foundations of these standards; namely, techniques such as predictive coding, transform-based coding such as the discrete cosine transform (DCT), motion estimation, motion compensation, and entropy coding, as well as how they are applied in the standards. The implementation details of each standard are avoided; however, the book provides all the material necessary to understand the workings of each of the compression standards, including information that can be used by the reader to evaluate the efficiency of various software and hardware implementations conforming to these standards. Particular emphasis is placed on those algorithms and architectures that have been found to be useful in practical software or hardware implementations. Image and Video Compression Standards: Algorithms and Architectures, emSecond Edition uniquely covers all

major standards (JPEG, MPEG-1, MPEG-2, MPEG-4, H.261, H.263) in a simple and tutorial manner, while fully addressing the architectural considerations involved when implementing these standards. As such, it serves as a valuable reference for the graduate student, researcher or engineer. The book is also used frequently as a text for courses on the subject, in both academic and professional settings.

Image and Video Compression for Multimedia Engineering

Yun-Qing Shi 2019-03-07 The latest edition provides a comprehensive foundation for image and video compression. It covers HEVC/H.265 and future video coding activities, in addition to Internet Video Coding. The book features updated chapters and content, along with several new chapters and sections. It adheres to the current international standards, including the JPEG standard.

The VC-1 and H.264 Video Compression Standards for Broadband Video Services Jae-Beom Lee 2008-12-18 This book covers the MPEG H.264 and MS VC-1 video coding standards as well as issues in broadband video delivery over IP networks. This professional reference is designed for industry practitioners, including video engineers, and professionals in consumer electronics, telecommunications and media compression industries. The book is also suitable as a secondary text for advanced-level students in computer science and electrical engineering.

Real-Time Video Compression Raymond Westwater 2007-08-28 Real-Time Video Compression: Techniques and Algorithms introduces the XYZ video compression technique, which operates in three dimensions, eliminating the overhead of motion estimation. First, video compression standards, MPEG and H.261/H.263, are described. They

both use asymmetric compression algorithms, based on motion estimation. Their encoders are much more complex than decoders. The XYZ technique uses a symmetric algorithm, based on the Three-Dimensional Discrete Cosine Transform (3D-DCT). 3D-DCT was originally suggested for compression about twenty years ago; however, at that time the computational complexity of the algorithm was too high, it required large buffer memory, and was not as effective as motion estimation. We have resurrected the 3D-DCT-based video compression algorithm by developing several enhancements to the original algorithm. These enhancements make the algorithm feasible for real-time video compression in applications such as video-on-demand, interactive multimedia, and videoconferencing. The demonstrated results, presented in this book, suggest that the XYZ video compression technique is not only a fast algorithm, but also provides superior compression ratios and high quality of the video compared to existing standard techniques, such as MPEG and H.261/H.263. The elegance of the XYZ technique is in its simplicity, which leads to inexpensive VLSI implementation of any XYZ codec. Real-Time Video Compression: Techniques and Algorithms can be used as a text for graduate students and researchers working in the area of real-time video compression. In addition, the book serves as an essential reference for professionals in the field.

Advances in Neural Networks - ISNN 2005 Jun Wang 2005-05-04 This book and its sister volumes constitute the proceedings of the 2nd International Symposium on Neural Networks (ISNN 2005). ISNN 2005 was held in the beautiful mountain city Chongqing by the upper Yangtze River in southwestern China during May 30–June 1, 2005, as a sequel of ISNN 2004 successfully held in Dalian,

China. ISNN emerged as a leading conference on neural computation in the region with - creasing global recognition and impact. ISNN 2005 received 1425 submissions from authors on 7ve continents (Asia, Europe, North America, South America, and Oc- nia), 33 countries and regions (Mainland China, Hong Kong, Macao, Taiwan, South Korea, Japan, Singapore, Thailand, India, Nepal, Iran, Qatar, United Arab Emirates, Turkey, Lithuania, Hungary, Poland, Austria, Switzerland, Germany, France, Sweden, Norway, Spain, Portugal, UK, USA, Canada, Venezuela, Brazil, Chile, Australia, and New Zealand). Based on rigorous reviews, 483 high-quality papers were selected by the Program Committee for presentation at ISNN 2005 and publication in the proce- ings, with an acceptance rate of less than 34%. In addition to the numerous contributed papers, 10 distinguished scholars were invited to give plenary speeches and tutorials at ISNN 2005.

Digital Image Processing Methods Edward R. Dougherty 2020-08-27 This unique reference presents in-depth coverage of the latest methods and applications of digital image processing describing various computer architectures ideal for satisfying specific image processing demands.

Versatile Video Coding: Latest Advances in Video Coding Standards Ochoa Dominguez, Humberto 2019-03-08 Video is the main driver of bandwidth use, accounting for over 80 per cent of consumer Internet traffic. Video compression is a critical component of many of the available multimedia applications, it is necessary for storage or transmission of digital video over today's band-limited networks. The majority of this video is coded using international standards developed in collaboration with ITU-T Study Group and MPEG. The MPEG family of video

coding standards begun on the early 1990s with MPEG-1, developed for video and audio storage on CD-ROMs, with support for progressive video. MPEG-2 was standardized in 1995 for applications of video on DVD, standard and high definition television, with support for interlaced and progressive video. MPEG-4 part 2, also known as MPEG-2 video, was standardized in 1999 for applications of low- bit rate multimedia on mobile platforms and the Internet, with the support of object-based or content based coding by modeling the scene as background and foreground. Since MPEG-1, the main video coding standards were based on the so-called macroblocks. However, research groups continued the work beyond the traditional video coding architectures and found that macroblocks could limit the performance of the compression when using high-resolution video. Therefore, in 2013 the high efficiency video coding (HEVC) also known and H.265, was released, with a structure similar to H.264/AVC but using coding units with more flexible partitions than the traditional macroblocks. HEVC has greater flexibility in prediction modes and transform block sizes, also it has a more sophisticated interpolation and de blocking filters. In 2006 the VC-1 was released. VC-1 is a video codec implemented by Microsoft and the Microsoft Windows Media Video (VMW) 9 and standardized by the Society of Motion Picture and Television Engineers (SMPTE). In 2017 the Joint Video Experts Team (JVET) released a call for proposals for a new video coding standard initially called Beyond the HEVC, Future Video Coding (FVC) or known as Versatile Video Coding (VVC). VVC is being built on top of HEVC for application on Standard Dynamic Range (SDR), High Dynamic Range (HDR) and 360° Video. The VVC is planned to be finalized by 2020. This book presents the new VVC,

and updates on the HEVC. The book discusses the advances in lossless coding and covers the topic of screen content coding. Technical topics discussed include: Beyond the High Efficiency Video Coding High Efficiency Video Coding encoder Screen content Lossless and visually lossless coding algorithms Fast coding algorithms Visual quality assessment Other screen content coding algorithms Overview of JPEG Series

The Electrical Engineering Handbook - Six Volume Set
Richard C. Dorf 2018-12-14 In two editions spanning more than a decade, The Electrical Engineering Handbook stands as the definitive reference to the multidisciplinary field of electrical engineering. Our knowledge continues to grow, and so does the Handbook. For the third edition, it has grown into a set of six books carefully focused on specialized areas or fields of study. Each one represents a concise yet definitive collection of key concepts, models, and equations in its respective domain, thoughtfully gathered for convenient access. Combined, they constitute the most comprehensive, authoritative resource available. Circuits, Signals, and Speech and Image Processing presents all of the basic information related to electric circuits and components, analysis of circuits, the use of the Laplace transform, as well as signal, speech, and image processing using filters and algorithms. It also examines emerging areas such as text to speech synthesis, real-time processing, and embedded signal processing. Electronics, Power Electronics, Optoelectronics, Microwaves, Electromagnetics, and Radar delves into the fields of electronics, integrated circuits, power electronics, optoelectronics, electromagnetics, light waves, and radar, supplying all of the basic information required for a deep

understanding of each area. It also devotes a section to electrical effects and devices and explores the emerging fields of microlithography and power electronics. Sensors, Nanoscience, Biomedical Engineering, and Instruments provides thorough coverage of sensors, materials and nanoscience, instruments and measurements, and biomedical systems and devices, including all of the basic information required to thoroughly understand each area. It explores the emerging fields of sensors, nanotechnologies, and biological effects. Broadcasting and Optical Communication Technology explores communications, information theory, and devices, covering all of the basic information needed for a thorough understanding of these areas. It also examines the emerging areas of adaptive estimation and optical communication. Computers, Software Engineering, and Digital Devices examines digital and logical devices, displays, testing, software, and computers, presenting the fundamental concepts needed to ensure a thorough understanding of each field. It treats the emerging fields of programmable logic, hardware description languages, and parallel computing in detail. Systems, Controls, Embedded Systems, Energy, and Machines explores in detail the fields of energy devices, machines, and systems as well as control systems. It provides all of the fundamental concepts needed for thorough, in-depth understanding of each area and devotes special attention to the emerging area of embedded systems. Encompassing the work of the world's foremost experts in their respective specialties, The Electrical Engineering Handbook, Third Edition remains the most convenient, reliable source of information available. This edition features the latest developments, the broadest scope of coverage, and new

material on nanotechnologies, fuel cells, embedded systems, and biometrics. The engineering community has relied on the Handbook for more than twelve years, and it will continue to be a platform to launch the next wave of advancements. The Handbook's latest incarnation features a protective slipcase, which helps you stay organized without overwhelming your bookshelf. It is an attractive addition to any collection, and will help keep each volume of the Handbook as fresh as your latest research.

Digital Video: An Introduction to MPEG-2 Barry G.

Haskell 2007-05-08 Digital Video offers comprehensive coverage of the MPEG-2 audio/visual digital compression standard. The treatment includes the specifics needed to implement an MPEG-2 Decoder, including the syntax and semantics of the coded bitstreams. Since the MPEG-2 Encoders are not specified by the standard, and are actually closely held secrets of many vendors, the book only outlines the fundamentals of encoder design and algorithm optimization.

Image Databases Vittorio Castelli 2004-04-07 The explosive growth of multimedia data transmission has generated a critical need for efficient, high-capacity image databases, as well as powerful search engines to retrieve image data from them. This book brings together contributions by an international all-star team of innovators in the field who share their insights into all key aspects of image database and search engine construction. Readers get in-depth discussions of the entire range of crucial image database architecture, indexing and retrieval, transmission, display, and user interface issues. And, using examples from an array of disciplines, the authors present cutting-edge applications in medical imagery, multimedia

communications, earth science, remote sensing, and other major application areas.

Digital Image Processing with Application to Digital Cinema K. S. Thyagarajan 2006 With crystal clarity, this book conveys the most current principles in digital image processing, providing both the background theory and the practical applications to various industries, such as digital cinema, video compression, and streaming media. This book contains tons of useful features, including: * a chapter on the role of human vision in image visualization, * the MATLAB codes used to generate most of the figures and tables listed in the book, as well as a few MATLAB projects, * a 24-pg color insert * case studies to illustrate the practical application of the theory.

Video Data Compression for Multimedia Computing Hua

Harry Li 2012-12-06 During the past few years, we have been witnessing the rapid growth of the applications of Interactive Digital Video, Multimedia Computing, Desktop Video Teleconferencing, Virtual Reality, and High Definition Television (HDTV). An other information revolution which is tied to Cyberspace is almost within reach. The information, data, text, graphics, video, sound, etc. , in the form of multi media, can be requested, accessed, distributed, and transmitted to potentially every household. This is changing and will continue to change the way of people doing business, functioning in the society, and entertaining. In the foreseeable future, many personalized, portable information terminals, which can be carried while traveling, will provide the link to central computer network to allow information exchange including videos from a node to node, from a center to a node, or nodes. Facing this opportunity, the question is what are the

major significant technical challenges that people have to solve to push the-state-of-the-art for the realization of the above mentioned technology advancement? From our professional judgement We feel that one of the major technical challenges is in Video Data Compression. Video communications in the form of desktop teleconferencing, videophone, network video delivery on demand, even games, are going to be major media traveling in the information super highway, hopping from one node in the Cyberspace to the other.

Programming Massively Parallel Processors David B. Kirk 2010-02-22 Programming Massively Parallel Processors discusses the basic concepts of parallel programming and GPU architecture. Various techniques for constructing parallel programs are explored in detail. Case studies demonstrate the development process, which begins with computational thinking and ends with effective and efficient parallel programs. This book describes computational thinking techniques that will enable students to think about problems in ways that are amenable to high-performance parallel computing. It utilizes CUDA (Compute Unified Device Architecture), NVIDIA's software development tool created specifically for massively parallel environments. Studies learn how to achieve both high-performance and high-reliability using the CUDA programming model as well as OpenCL. This book is recommended for advanced students, software engineers, programmers, and hardware engineers. Teaches computational thinking and problem-solving techniques that facilitate high-performance parallel computing. Utilizes CUDA (Compute Unified Device Architecture), NVIDIA's software development tool created specifically for massively parallel environments. Shows you how to achieve both high-performance and high-reliability using

the CUDA programming model as well as OpenCL.

Advances in Diagnostic and Therapeutic Ultrasound Imaging Jasjit S. Suri 2008-01-01 This groundbreaking resource offers you exclusive coverage of the latest techniques in diagnostic and therapeutic 3-D ultrasound imaging instrumentation and techniques. Providing a solid overview of potential applications in clinical practice, you find need-to-know details on major diseases, including vascular diseases, breast cancer, cardiac abnormalities and prostate cancer.

Performance Evaluation and Applications of ATM Networks Demetres D. Kouvatsos 2000-05-31 Information Highways are widely considered as the next generation of high speed communication systems. These highways will be based on emerging Broadband Integrated Services Digital Networks (B-ISDN), which - at least in principle - are envisioned to support not only all the kinds of networking applications known today but also future applications which are not as yet understood fully or even anticipated. Thus, B-ISDNs release networking processes from the limitations which the communications medium has imposed historically. The operational generality stems from the versatility of Asynchronous Transfer Mode (ATM) which is the transfer mode adopted by ITU-T for broadband public ISDN as well as wide area private ISDN. A transfer mode which provides the transmission, multiplexing and switching core that lies at the foundations of a communication network. ATM is designed to integrate existing and future voice, audio, image and data services. Moreover, ATM aims to minimise the complexity of switching and buffer management, to optimise intermediate node processing and buffering and to bound transmission delays. These design objectives are met at high transmission speeds by keeping the basic

unit of ATM transmission - the ATM cell - short and of fixed length.

Applications and Science of Computational Intelligence 2002

Digital Pictures Arun N. Netravali 2013-12-19

Video Coding for Mobile Communications Mohammed Al-

Mualla 2002-05-13 In order for wireless devices to function, the signals must be coded in standard ways so that the sender and the receiver can communicate. This area of video source coding is one of the key challenges in the worldwide push to deliver full video

communications over wireless devices. Video Coding for Mobile Communications reviews current progress in this field and looks at how to solve some of the most important technology issues in the months and years ahead. The vision of being able to communicate from anywhere, at any time, and with any type of information is on its way to becoming reality. This natural convergence of mobile communications and multimedia is a field that is expected to achieve unprecedented growth and commercial success. Current wireless communication devices support a number of basic multimedia services (voice, messages, basic internet access), but have coding problems that need to be solved before "real-time" mobile video communication can be achieved. Addresses the emerging field of mobile multimedia communications

Digital Color Imaging Handbook Gaurav Sharma 2017-12-19

Digital technology now enables unparalleled functionality and flexibility in the capture, processing, exchange, and output of color images. But harnessing its potential requires knowledge of color science, systems, processing algorithms, and device characteristics-topics drawn from a broad range of

disciplines. One can acquire the requisite background with an armload of physics, chemistry, engineering, computer science, and mathematics books and journals- or one can find it here, in the Digital Color Imaging Handbook. Unprecedented in scope, this handbook presents, in a single concise and authoritative publication, the elements of these diverse areas relevant to digital color imaging. The first three chapters cover the basics of color vision, perception, and physics that underpin digital color imaging. The remainder of the text presents the technology of color imaging with chapters on color management, device color characterization, digital halftoning, image compression, color quantization, gamut mapping, computationally efficient transform algorithms, and color image processing for digital cameras. Each chapter is written by world-class experts and largely self-contained, but cross references between chapters reflect the topics' important interrelations. Supplemental materials are available for download from the CRC Web site, including electronic versions of some of the images presented in the book.

Digital Pictures Arun Netravali 1988-04 For thousands of years mankind has been creating pictures which attempt to portray real or imagined scenes as perceived by human vision. Cave drawings, paintings and photographs are able to stimulate the visual system and conjure up thoughts of faraway places, imagined situations or pleasant sensations. The art of motion picture creation has advanced to the point where viewers often undergo intense emotional experiences. On-the spot news coverage gives the impression of actually witnessing events as they unfold. Relatively recently, other forms of visual information have been invented which do not, in

themselves, stimulate the eye. For example, voltage variations in an electrical signal, as in television, can represent in analogous fashion the brightness variations in a picture. In this form the visual information can be stored on magnetic tape or transmitted over long distances, and, at least for engineering purposes, it is often much more useful than other forms which do stimulate human vision. With the evolution of digital techniques for information processing, storage, and transmission, the need arises for digital representation of visual information, that is, the representation of images by a sequence of integer numbers (usually binary). In this form, computer processing and digital circuit techniques can be utilized which were undreamed of only a short time ago. Machine manipulation and interpretation of visual information becomes possible. Sophisticated techniques can be employed for efficient storage of images. And processing methods can be used to significantly reduce the costs of picture transmission.

Handbook of Visual Communications Hseuh-Ming Hang 2012-12-02 This volume is the most comprehensive reference work on visual communications to date. An international group of well-known experts in the field provide up-to-date and in-depth contributions on topics such as fundamental theory, international standards for industrial applications, high definition television, optical communications networks, and VLSI design. The book includes information for learning about both the fundamentals of image/video compression as well as more advanced topics in visual communications research. In addition, the Handbook of Visual Communications explores the latest developments in the field, such as model-based image coding, and provides readers with insight

into possible future developments. Displays comprehensive coverage from fundamental theory to international standards and VLSI design Includes 518 pages of contributions from well-known experts Presents state-of-the-art knowledge--the most up-to-date and accurate information on various topics in the field Provides an extensive overview of international standards for industrial applications

Encyclopedia of Multimedia Borko Furht 2008-11-26 This second edition provides easy access to important concepts, issues and technology trends in the field of multimedia technologies, systems, techniques, and applications. Over 1,100 heavily-illustrated pages – including 80 new entries – present concise overviews of all aspects of software, systems, web tools and hardware that enable video, audio and developing media to be shared and delivered electronically.

Digital Video Transition Analysis And Detection Wei Jyh Heng 2002-12-26 This book presents a comprehensive coverage of video transition analysis and detection, which is a critical technology in video indexing embodied in the recent MPEG-7 standard, defining the description interface for multimedia content. It is a timely publication, in that the MPEG-7 standard is driving the explosion of multimedia applications on the Internet. The book outlines a revolutionary system for automatic analysis and detection of transitions, which is not found in any other book.

Webb's Physics of Medical Imaging, Second Edition M A Flower 2016-02-03 Since the publication of the best-selling, highly acclaimed first edition, the technology and clinical applications of medical imaging have changed significantly. Gathering these developments into one volume, Webb's Physics of Medical Imaging, Second

Edition presents a thorough update of the basic physics, modern technology and many examples of clinical application across all the modalities of medical imaging. New to the Second Edition Extensive updates to all original chapters Coverage of state-of-the-art detector technology and computer processing used in medical imaging 11 new contributors in addition to the original team of authors Two new chapters on medical image processing and multimodality imaging More than 50 percent new examples and over 80 percent new figures Glossary of abbreviations, color insert and contents lists at the beginning of each chapter Keeping the material accessible to graduate students, this well-illustrated book reviews the basic physics underpinning imaging in medicine. It covers the major techniques of x-radiology, computerised tomography, nuclear medicine, ultrasound and magnetic resonance imaging, in addition to infrared, electrical impedance and optical imaging. The text also describes the mathematics of medical imaging, image processing, image perception, computational requirements and multimodality imaging.

Image-Based Rendering Heung-Yeung Shum 2008-05-26
Focusing exclusively on Image-Based Rendering (IBR) this book examines the theory, practice, and applications associated with image-based rendering and modeling. Topics covered vary from IBR basic concepts and representations on the theory side to signal processing and data compression on the practical side. One of the only titles devoted exclusively to IBR this book is intended for researchers, professionals, and general readers interested in the topics of computer graphics, computer vision, image process, and video processing. With this book advanced-level students in EECS studying related disciplines will be able to seriously expand

their knowledge about image-based rendering.

Recent Advances and Issues in Computers Martin Gay 2000
Describes the latest developments and innovations in computer science research and technology.

Digital Image Compression Techniques Majid Rabbani 1991
In order to utilize digital images effectively, specific techniques are needed to reduce the number of bits required for their representation. This Tutorial Text provides the groundwork for understanding these image compression techniques and presents a number of different schemes that have proven useful. The algorithms discussed in this book are concerned mainly with the compression of still-frame, continuous-tone, monochrome and color images, but some of the techniques, such as arithmetic coding, have found widespread use in the compression of bilevel images. Both lossless (bit-preserving) and lossy techniques are considered. A detailed description of the compression algorithm proposed as the world standard (the JPEG baseline algorithm) is provided. The book contains approximately 30 pages of reconstructed and error images illustrating the effect of each compression technique on a consistent image set, thus allowing for a direct comparison of bit rates and reconstructed image quality. For each algorithm, issues such as quality vs. bit rate, implementation complexity, and susceptibility to channel errors are considered.

Applications of Digital Image Processing 2006

Advanced IT Tools Nobuyoshi Terashima 2013-11-18 TRACK 1: Innovative Applications in the Public Sector The integration of multimedia based applications and the information superhighway fundamentally concerns the creation of a communication technology to support the activities of people. Communication is a profoundly social

activity involving interactions among groups or individuals, common standards of exchange, and national infrastructures to support telecommunications activities. The contributions of the invited speakers and others in this track begin to explore the social dimension of communication within the context of integrated, information systems for the public sector. Interactions among businesses and households are described by Ralf Strauss through the development within a real community of a "wired city" with information and electronic services provided by the latest telecommunications technologies. A more specific type of interaction between teacher and student forms the basis of education. John Tiffin demonstrates how virtual classrooms can be used to augment the educational process. Carl Loeffler presents yet another perspective on interaction through the integration of A-life and agent technologies to investigate the dynamics of complex behaviors within networked simulation environments. Common standards for communication in the form of electronic documents or CSCW (Computer Supported Cooperative Work), according to Roland Traunmiiller, provide enabling technologies for a paradigm shift in the management of organizations. As pointed out by William Olle, the impact of standardization work on the future of information technology depends critically upon the interoperability of software systems.

Digital Video Image Quality and Perceptual Coding H.R. Wu 2017-12-19 The hand is quicker than the eye. In many cases, so is digital video. Maintaining image quality in bandwidth- and memory-restricted environments is quickly becoming a reality as thriving research delves ever deeper into perceptual coding techniques, which discard superfluous data that humans cannot process or detect.

Surveying the topic from a Human Visual System (HVS)-based approach, *Digital Video Image Quality and Perceptual Coding* outlines the principles, metrics, and standards associated with perceptual coding, as well as the latest techniques and applications. This book is divided broadly into three parts. First, it introduces the fundamental theory, concepts, principles, and techniques underlying the field, such as the basics of compression, HVS modeling, and coding artifacts associated with current well-known techniques. The next section focuses on picture quality assessment criteria; subjective and objective methods and metrics, including vision model based digital video impairment metrics; testing procedures; and international standards regarding image quality. Finally, practical applications come into focus, including digital image and video coder designs based on the HVS as well as post-filtering, restoration, error correction, and concealment techniques. The permeation of digital images and video throughout the world cannot be understated. Nor can the importance of preserving quality while using minimal storage space, and *Digital Video Image Quality and Perceptual Coding* provides the tools necessary to accomplish this goal. Instructors and lecturers wishing to make use of this work as a textbook can download a presentation of 786 slides in PDF format organized to augment the text. accompany our book (H.R. Wu and K.R. Rao, *Digital Video Image Quality and Perceptual Coding*, CRC Press (ISBN: 0-8247-2777-0), Nov. 2005) for lecturers or instructor to use for their classes if they use the book.

Binary Digital Image Processing Stéphane Marchand-Maillet 1999-12-01 *Binary Digital Image Processing* is aimed at faculty, postgraduate students and industry

specialists. It is both a text reference and a textbook that reviews and analyses the research output in this field of binary image processing. It is aimed at both advanced researchers as well as educating the novice to this area. The theoretical part of this book includes the basic principles required for binary digital image analysis. The practical part which will take an algorithmic approach addresses problems which find applications beyond binary digital line image processing. The book first outlines the theoretical framework underpinning the study of digital image processing with particular reference to those needed for line image processing. The theoretical tools in the first part of the book set the stage for the second and third parts, where low-level binary image processing is addressed and then intermediate level processing of binary line images is studied. The book concludes with some practical applications of this work by reviewing some industrial and software applications (engineering drawing storage and primitive extraction, fingerprint compression). Outlines the theoretical framework underpinning the study of digital image processing with particular reference to binary line image processing Addresses low-level binary image processing, reviewing a number of essential characteristics of binary digital images and providing solution procedures and algorithms Includes detailed reviews of topics in binary digital image processing with up-to-date research references in relation to each of the problems under study Includes some practical applications of this work by reviewing some common applications Covers a range of topics, organised by theoretical field rather than being driven by problem definitions

Proceedings of International Conference on ICT for

Sustainable Development Suresh Chandra Satapathy
2016-02-10 The two volumes of this book collect high-quality peer-reviewed research papers presented in the International Conference on ICT for Sustainable Development (ICT4SD 2015) held at Ahmedabad, India during 3 – 4 July 2015. The book discusses all areas of Information and Communication Technologies and its applications in field for engineering and management. The main focus of the volumes are on applications of ICT for Infrastructure, e-Governance, and contemporary technologies advancements on Data Mining, Security, Computer Graphics, etc. The objective of this International Conference is to provide an opportunity for the researchers, academicians, industry persons and students to interact and exchange ideas, experience and expertise in the current trend and strategies for Information and Communication Technologies.

Discrete Wavelet Transforms Hannu Olkkonen 2011-08-29
The discrete wavelet transform (DWT) algorithms have a firm position in processing of signals in several areas of research and industry. As DWT provides both octave-scale frequency and spatial timing of the analyzed signal, it is constantly used to solve and treat more and more advanced problems. The present book: *Discrete Wavelet Transforms: Algorithms and Applications* reviews the recent progress in discrete wavelet transform algorithms and applications. The book covers a wide range of methods (e.g. lifting, shift invariance, multi-scale analysis) for constructing DWTs. The book chapters are organized into four major parts. Part I describes the progress in hardware implementations of the DWT algorithms. Applications include multitone modulation for ADSL and equalization techniques, a scalable architecture for FPGA-implementation, lifting based

algorithm for VLSI implementation, comparison between DWT and FFT based OFDM and modified SPIHT codec. Part II addresses image processing algorithms such as multiresolution approach for edge detection, low bit rate image compression, low complexity implementation of CQF wavelets and compression of multi-component images. Part III focuses watermarking DWT algorithms. Finally, Part IV describes shift invariant DWTs, DC lossless property, DWT based analysis and estimation of colored noise and an application of the wavelet Galerkin method. The chapters of the present book consist of both tutorial and highly advanced material. Therefore, the book is intended to be a reference text for graduate students and researchers to obtain state-of-the-art knowledge on specific applications.

Digital Image Processing and Analysis Scott E Umbaugh
2016-04-19 Whether for computer evaluation of otherworldly terrain or the latest high definition 3D blockbuster, digital image processing involves the acquisition, analysis, and processing of visual information by computer and requires a unique skill set that has yet to be defined a single text. Until now. Taking an applications-oriented, engineering approach, Digital Image Processing and Analysis provides the tools for developing and advancing computer and human vision applications and brings image processing and analysis together into a unified framework. Providing information and background in a logical, as-needed fashion, the author presents topics as they become necessary for understanding the practical imaging model under study. He offers a conceptual presentation of the material for a solid understanding of complex topics and discusses the theory and foundations of digital image processing and the algorithm development needed to advance the

field. With liberal use of color through-out and more materials on the processing of color images than the previous edition, this book provides supplementary exercises, a new chapter on applications, and two major new tools that allow for batch processing, the analysis of imaging algorithms, and the overall research and development of imaging applications. It includes two new software tools, the Computer Vision and Image Processing Algorithm Test and Analysis Tool (CVIP-ATAT) and the CVIP Feature Extraction and Pattern Classification Tool (CVIP-FEPC). Divided into five major sections, this book provides the concepts and models required to analyze digital images and develop computer vision and human consumption applications as well as all the necessary information to use the CVIPtools environment for algorithm development, making it an ideal reference tool for this fast growing field.

Image and Video Compression for Multimedia Engineering
Yun Q. Shi 1999-12-20 Advanced technologies have increased demands for visual information and higher quality video frames, as with 3-D movies, games, and HDTV. This taxes the available technologies and creates a gap between the huge amount of visual data required for multimedia applications and the still-limited hardware capabilities. *Image and Video Compression for Multimedia Engineering* bridges the gap with concise, authoritative information on video and image coding. The tutorial provides a solid, comprehensive understanding of the fundamentals and algorithms of coding and details all of the relevant international coding standards. It presents recent findings on defining methods for generating high quality video bitstreams. The authors present recent research results and cover emerging technologies. With the growing popularity of the

applications that use large amounts of visual data, image and video coding is an active and dynamic field. Coverage of both image and video compression in this book yields a unique, self-contained reference, appropriate for all related professions. Image and Video Compression for Multimedia Engineering builds a basis for future study, research, and development.

Signal Processing for Multimedia J. S. Byrnes 1999

Discover success in global business today with the most strategic approach to international business topics and unique coverage not found in other books. Written by renowned international instructor and author Mike Peng, GLOBAL BUSINESS is the first truly global business book to answer the big question, "What determines the success and failure of firms around the globe?" This edition blends both an institutional-based view and resource-based view throughout every chapter for an unparalleled continuity in the learning process. The book combines an inviting, conversational style with the latest research and examples throughout every chapter. A comprehensive set of cases from Mike Peng and other respected international experts examine how companies throughout the world have expanded globally. All-new video cases, world maps, and unique global debate sections help readers view business challenges from a truly global perspective. Available with InfoTrac Student Collections <http://gocengage.com/infotrac>.

Readings in Multimedia Computing and Networking Kevin Jeffay 2001-08-10 Readings in Multimedia Computing and Networking captures the broad areas of research and developments in this burgeoning field, distills the key findings, and makes them accessible to professionals, researchers, and students alike. For the first time, the most influential and innovative papers on these topics

are presented in a cohesive form, giving shape to the diverse area of multimedia computing. The seminal moments are recorded by a dozen visionaries in the field and each contributing editor provides a context for their area of research by way of a thoughtful, focused chapter introduction. The volume editors, Kevin Jeffay and HongJiang Zhang, offer further incisive interpretations of past and present developments in this area, including those within media and content processing, operating systems, and networking support for multimedia. This book will provide you with a sound understanding of the theoretical and practical issues at work in the field's continuing evolution. * Offers an in-depth look at the technical challenges in multimedia and provides real and potential solutions that promise to expand the role of multimedia in business, entertainment, and education. * Examines in Part One issues at the heart of multimedia processes: the means by which multimedia data are coded, compressed, indexed, retrieved, and otherwise manipulated. * Examines in Part Two the accommodation of these processes by storage systems, operating systems, network protocols, and applications. * Written by leading researchers, the introductions give shape to a field that is continually defining itself and place the key research findings in context to those who need to understand the state-of-the-art developments.

Multimedia Jose L. Encarnacao 2012-12-06 Multimedia computing is a logical next step by which computing technology will become ever more useful and ubiquitous in our everyday lives. From the perspective of technical challenges, multimedia affects nearly every aspect of computer hardware and software. The long-heralded marriage of computing, communications, and information

services is now being consummated, and is manifesting itself in literally dozens of new alliances between companies ranging from semiconductors to cable TV, from newspapers and telephone companies to computer hardware and software.

Color Image Processing and Applications Konstantinos N. Plataniotis 2013-04-17 Reporting the state of the art of colour image processing, this monograph fills a gap in the literature on digital signal and image processing. It contains numerous examples and pictures of colour image processing results, plus a library of algorithms implemented in C.

Digital Image Compression Weidong Kou 1995-09-30 Digital image business applications are expanding rapidly, driven by recent advances in the technology and breakthroughs in the price and performance of hardware and firmware. This ever increasing need for the storage and transmission of images has in turn driven the

technology of image compression: image data rate reduction to save storage space and reduce transmission rate requirements. Digital image compression offers a solution to a variety of imaging applications that require a vast amount of data to represent the images, such as document imaging management systems, facsimile transmission, image archiving, remote sensing, medical imaging, entertainment, HDTV, broadcasting, education and video teleconferencing. Digital Image Compression: Algorithms and Standards introduces the reader to compression algorithms, including the CCITT facsimile standards T.4 and T.6, JBIG, CCITT H.261 and MPEG standards. The book provides comprehensive explanations of the principles and concepts of the algorithms, helping the readers' understanding and allowing them to use the standards in business, product development and R&D. Audience: A valuable reference for the graduate student, researcher and engineer. May also be used as a text for a course on the subject.