Digital Video And Hd Algorithms And Interfaces

Visualization in Medicine is the first book on visualization and its application to problems in medical diagnosis, education, and treatment. The book describes the algorithms, the applications and their validation (how reliable are the results?), and the clinical evaluation of the applications (are the techniques useful?). It discusses visualization techniques from research literature as well as the compromises required to solve practical clinical problems. The book covers image acquisition, image analysis, and interaction techniques designed to explore and analyze the data. The final chapter shows how visualization is used for planning liver surgery, one of the most demanding surgical disciplines. The book is based on several years of the authors' teaching and research experience. Both authors have initiated and lead a variety of interdisciplinary projects involving computer scientists and medical doctors, primarily radiologists and surgeons. * A core field of visualization and graphics missing a dedicated book until now * Written by pioneers in the field and illustrated in full color * Covers theory as well as practice

Rapidly evolving computer and communications technologies have achieved data transmission rates and data storage capacities high enough for digital video. But video involves much more than just pushing bits! Achieving the best possible image quality, accurate color, and smooth motion requires understanding many aspects of image acquisition, coding, processing, and display that are outside the usual realm of computer graphics. At the same time, video system designers are facing new demands to interface with film and computer system that require techniques outside conventional video engineering. Charles Poynton's 1996 book A Technical Introduction to Digital Video became an industry favorite for its succinct, accurate, and accessible treatment of standard definition television (SDTV). In Digital Video and HDTV, Poynton augments that book with coverage of high definition television (HDTV) and compression systems. For more information on HDTV Retail markets, go to: http://www.insightmedia.info/newsletters.php#hdtv With the help of hundreds of high quality technical illustrations, this book presents the following topics: * Basic concepts of digitization, sampling, quantization, gamma, and filtering * Principles of color science as applied to image capture and display * Scanning and coding of SDTV and HDTV * Video color coding: luma, chroma (4:2:2 component video, 4fSC composite video) * Analog NTSC and PAL * Studio systems and interfaces * Compression technology, including M-JPEG and MPEG-2 * Broadcast standards and consumer video equipment

Digital Video Concepts, Methods, and Metrics: Quality, Compression, Performance, and Power Trade-off Analysis is a concise reference for professionals in a wide range of applications and vocations. It focuses on giving the reader mastery over the concepts, methods and metrics of digital video coding, so that readers have sufficient understanding to choose and tune coding parameters for optimum results that would suit their particular needs for quality, compression, speed and power. The practical aspects are many: Uploading video to the Internet is only the beginning of a trend where a consumer controls video quality and speed by trading off various other factors. Open source and proprietary applications such as video e-mail, private party content generation, editing and archiving, and cloud asset management would give further control to the end-user. Digital video is frequently compressed and coded for easier storage and transmission. This process involves visual quality loss due to typical data compression techniques and requires use of high performance computing systems. A careful balance between the amount of compression, the visual quality loss and the coding speed is necessary to keep the total system cost down, while delivering a good user experience for various video applications. At the same time, power consumption optimizations are also essential to get the job done on inexpensive consumer platforms. Trade-offs can be made among these factors, and relevant considerations are particularly important in resource-constrained low power devices. To better understand the trade-offs this book discusses a comprehensive set of engineering principles, strategies, methods and metrics. It also exposes readers to approaches on how to differentiate and rank video coding solutions.

Using computers and communication systems, it is easy to acquire, process, transmit, and display photographic-quality still color pictures. But the goals of smooth motion and accurate color reproduction are elusive. The technologies of digital video that are necessary to achieve these two important goals have remained inaccessible even to technical professionals-until now. In this unique book, an internationally recognized expert addresses digital video from the perspective of computing and communications. A Technical Introduction to Digital Video is an approachable and definitive reference to the principles, algorithms, standards, and techniques of digital video. If you are a computer system designer, engineer, programmer, or technician, you can use this book to help you learn how to apply digital video to computer systems. If you are a television professional, this book will help you to apply digital video systems, equipment, and techniques to the emerging area of multimedia.

Advances in Multirate Systems

Encyclopedia of Information Science and Technology

Human and Computer Vision Applications with CVIPtools, Second Edition

A Technical Introduction to Digital Video

Fundamentals of Multimedia

Advances in Networked-based Information Systems

Written as an introduction for undergraduate students, this textbook covers the most important methods in digital image processing. Formal and mathematical aspects are discussed at a fundamental level and various practical examples and exercises supplement the text. The book uses the image processing environment ImageJ, freely distributed by the National Institute of Health. A comprehensive website supports the book, and contains full source code for all examples in the book, a question and answer forum, slides for instructors, etc. Digital Image Processing in Java is the definitive textbook for computer science students studying image processing and digital processing.

An Innovative Approach to Multidimensional Signals and Systems Theory for Image and Video Processing In this volume, Eric Dubois further develops the theory of multi-D signal processing wherein input and output are vector-value signals. With this framework, he introduces the reader to crucial concepts in signal processing such as continuous- and discrete-domain signals and systems, discrete-domain periodic signals, sampling and reconstruction, light and color, random field models, image representation and more. While most treatments use normalized representations for non-rectangular sampling, this approach obscures much of the geometrical and scale information of the signal. In contrast, Dr. Dubois uses actual units of space-time and frequency. Basis-independent representations appear as much as possible, and the basis is introduced where needed to perform calculations or implementations. Thus, lattice theory is developed from the beginning and rectangular sampling is treated as a special case. This is especially significant in the treatment of color and color image processing and for discrete transform representations based on symmetry groups, including fast computational algorithms. Other features include: An entire chapter on lattices, giving the reader a thorough grounding in the use of lattices in signal processing Extensive treatment of lattices as used to describe discrete-domain signals and signal periodicities Chapters on sampling and reconstruction, random field models, symmetry invariant signals and systems and multidimensional Fourier transformation properties Supplemented throughout with MATLAB examples and accompanying downloadable source code Graduate and doctoral students as well as senior undergraduates and professionals working in signal processing or video/image processing and imaging will appreciate this fresh approach to multidimensional signals and systems theory, both as a thorough introduction to the subject and as inspiration for future research.

Forensic Gait Analysis examines the inter-section of podiatric medicine with forensic investigation—that which links or dissociates a suspect to a crime through analysis of their gait, that is their movement—how an individual walks, runs, and bends. This book provides a concise explanation of how an individual's gait and biomechanics are forensically analysed and compared, using video imagery in the process of human identification and investigations. Along with the presentation and delivery of material with case law references illustrating the use of expert evidence. Gait analysis is a long-standing component of the diagnostic and therapeutic tool set of medical disciplines, although the knowledge goes back much further. The area has also captured the interest of technology engineers and others, as the development and use of forensic gait analysis as an investigative and evidential device continues to widen. Features: • Presents succinct knowledge on forensic gait analysis. • 100+ illustrations with photographs and diagrams; over 850 references. • Considers the technical and scientific basis of the field including, the history of gait, musculoskeletal, neurology, emotions and gait, forensic statistics, photogrammetry, and recognises the trajectory of development into IT and software solutions. • Coverage on CCTV imagery and other video footage for use in the process of identification and investigations. • Details are provided on report writing and giving expert evidence in the legal systems. • Contributors across all subject areas. This definitive fully referenced text on Forensic Gait Analysis is a welcome publication for healthcare professionals, lawyers, counsel, investigators, forensic practitioners, and students wishing to know more on the subject and this growing domain.

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.

Annual Review of Information Science and Technology 2004

Digital Image Processing and Analysis

Forensic Gait Analysis

Quality, Compression, Performance, and Power Trade-off Analysis

A Field Guide to Digital Color

Acquisition, Display, and Image-Based Lighting

Colour imaging technology has become almost ubiquitous in modern life in the form of monitors, liquid crystal screens, colour printers, scanners, and digital cameras. This book is a comprehensive guide to the scientific and engineering principles of colour imaging. It covers the physics of light and colour, how the eye and physical devices capture colour images, how colour is measured and calibrated, and how images are processed. It stresses physical principles and includes a wealth of real-world examples. The book will be of value to scientists and engineers in the colour imaging industry and, with homework problems, can also be used as a text for graduate courses on colour imaging.

Contents for Volume 38:Science and Technology Studies and Information Studies, by Nancy A. Van HouseNew Theoretic Approaches for Human-Computer Interaction, by Yvonne RogersCommunity and Electronic Community, by David Ellis, Rachel Oldridge, and Ana VasconcelosLatent Semantic Analysis, by Susan T. DumaisThe Use of Web Search Engines in Information Science Research, by Judit Bar-IlanWeb Mining: Machine Learning for Web Applications, by Hsinchun Chen and Michael ChauData Mining in Health and Medical Information, by Peter A. BathIndexing, Browsing, and Searching of Digital Video, by Alan F. SmeatonICT's and Political Life, by Alice Robbin, Christina Courtright, and Leah DavisLegal Aspects of the Web, by Alexandre Lopez Borrull and Charles OppenheimPreservation of Digital Objectives, by Patricia GallowayThe Internet and Unrefereed Scholarly Publishing, by Rob Kling

With contributions by Michael Ashikhmin, Michael Gleicher, Naty Hoffman, Garrett Johnson, Tamara Munzner, Erik Reinhard, Kelvin Sung, William B. Thompson, Peter Willemsen, Brian Wyvill. The third edition of this widely adopted text gives students a comprehensive, fundamental introduction to computer graphics. The authors present the mathematical foundations of computer graphics with a focus on geometric intuition, allowing the programmer to understand and apply those foundations to the development of efficient code. New in this edition: Four new contributed chapters, written by experts in their fields: Implicit Modeling, Computer Graphics in Games, Color, Visualization, including information visualization Revised and updated material on the graphics pipeline, reflecting a modern viewpoint organized around programmable shading. Expanded treatment of viewing that improves clarity and consistency while unifying viewing in ray tracing and rasterization. Improved and expanded coverage of triangle meshes and mesh data structures. A new organization for the early chapters, which concentrates foundational material at the beginning to increase teaching flexibility.

A comprehensive and practical analysis and overview of the imaging chain through acquisition, processing and displayThe Handbook of Digital Imaging provides a coherent overview of the imaging science amalgam, focusing on the capture, storage and display of images. The volumes are arranged thematically to provide a seamless analysis of the imaging chain from source (image acquisition) to destination (image print/display). The coverage is planned to have a very practical orientation to provide a comprehensive source of information for practicing engineers designing and developing modern digital imaging systems. The content will be drawn from all aspects of digital imaging including optics, sensors, quality, control, colour encoding and decoding, compression, projection and display.• Contains approximately 50, highly illustrated articles (ranging from 20-40 pages), printed in full colour throughoutComprehensive 3-volume set, also available on Wiley Online Library. • Over 50 Contributors, with contributors from Europe, US and Asia. Contributors are both and from academia and industryThe 3 volumes will be organized thematically for enhanced usability:Volume 1: Image Capture and Storage• Image Capture and Storage Volume 2: Image Display and Reproduction• Image Display and Projection• Hardcopy Technology• Halftoning and Physical Evaluation• Models for Halftone ReproductionVolume 3: Imaging System Applications• Media Imaging• Remote Imaging• Medical and Forensic ImagingIdeal for engineers and designers in the dynamic global imaging and display industries

From Acquisition, to Display and Applications

Digital Video Concepts, Methods, and Metrics

An Algorithmic Introduction Using Java

Industry Standard VFX Practices and Procedures

Professional Techniques for Video and Cinema

Handbook of Digital Imaging

The essential guide to the entire process behind performing a complete characterization and benchmarking of cameras through image quality analysis Camera Image Quality Benchmarking contains the basic information and approaches for the use of subjectively correlated image quality metrics and outlines a framework for camera benchmarking. The authors show how to quantitatively compare image quality of cameras used for consumer photography. This book helps to fill a void in the literature by detailing the types of objective and subjective metrics that are fundamental to benchmarking still and video imaging devices. Specifically, the book provides an explanation of individual image quality attributes and how they manifest themselves to camera components and explores the key photographic still and video image quality metrics. The text also includes illustrative examples of benchmarking methods so that the practitioner can design a methodology appropriate to the photographic usage in consideration. The authors outline the various techniques used to correlate the measurement results from the objective methods with subjective results. The text also contains a detailed description on how to set up an image quality characterization lab, with examples where the methodological benchmarking approach described has been implemented successfully. This vital resource: Explains in detail the entire process behind performing a complete characterization and benchmarking of cameras through image quality analysis Provides best practice measurement protocols and methodologies, so readers can develop and define their own camera benchmarking system to industry standards Includes many photographic images and diagrammatical illustrations to clearly convey image quality concepts Champions benchmarking approaches that value the importance of perceptually correlated image quality metrics Written for image scientists, engineers, or managers involved in image quality and evaluating camera performance, Camera Image Quality Benchmarking combines knowledge from many different engineering fields, correlating objective (perception-independent) image quality with subjective (perception-dependent) image quality metrics.

"This set of books represents a detailed compendium of authoritative, research-based entries that define the contemporary state of knowledge on technology"--Provided by publisher.

Understanding Virtual Reality arrives at a time when the technologies behind virtual reality have advanced to the point that it is possible to develop and deploy meaningful, productive virtual reality applications. The aim of this thorough, accessible exploration is to help you take advantage of this moment, equipping you with the understanding needed to

identify and prepare for ways VR can be used in your field, whatever your field may be. By approaching VR as a communications medium, the authors have created a resource that will remain relevant even as the underlying technologies evolve. You get a history of VR, along with a good look at systems currently in use. However, the focus remains squarely on the application of VR and the many issues that arise in the application design and implementation, including hardware requirements, system integration, interaction techniques, and usability. This book also counters both exaggerated claims for VR and the view that would reduce it to entertainment, citing dozens of real-world examples from many different fields and presenting (in a series of appendices) four in-depth application case studies. * Substantive, illuminating coverage designed for technical and business readers and well-suited to the classroom. * Examines VR's constituent technologies, drawn from visualization, representation, graphics, human-computer interaction, and other fields, and explains how they are being united in cohesive VR systems. * Via a companion Web site, provides additional case studies, tutorials, instructional materials, and a link to an open-source VR programming system.

Computer Imaging: Digital Image Analysis and Processing brings together analysis and processing in a unified framework, providing a valuable foundation for understanding both computer vision and image processing applications. Taking an engineering approach, the text integrates theory with a conceptual and application-oriented style, allowing you to immediately understand how each topic fits into the overall structure of practical application development. Divided into five major parts, the book begins by introducing the concepts and definitions necessary to understand computer imaging. The second part describes image analysis and provides the tools, concepts, and models required to analyze digital images and develop computer vision applications. Part III discusses application areas for the processing of images, emphasizing human visual perception. Part IV delivers the information required to apply a CVIPtools environment to algorithm development. The text concludes with appendices that provide supplemental imaging information and assist with the programming exercises found in each chapter. The author presents topics as needed for understanding each practical imaging model being studied. This motivates the reader to master the topics and also makes the book useful as a reference. The CVIPtools software integrated throughout the book, now in a new Windows version, provides practical examples and encourages you to conduct additional exploration via tutorials and programming exercises provided with each chapter.

Comprehensive Healthcare Simulation: Operations, Technology, and Innovative Practice

Advanced Graphics Programming Using OpenGL

Techniques and Applications

Fundamental Algorithms In MATLAB® Second, Completely Revised, Extended And Updated Edition

Fundamentals of Computer Graphics

Fundamentals and Applications

This book provides the reader with an understanding of what color is, where color comes from, and how color can be used correctly in many different applications. The authors first treat the physics of light and its interaction with matter at the atomic level, so that the origins of color can be appreciated. The intimate relationship between energy

The book covers techniques and solutions all VFX artists, producers, and supervisors need to know, from preproduction, to digital character creation and compositing of both live-action and CG elements. In-depth lessons on stereoscopic moviemaking, color management and digital intermediates are included, as well as chapters on interactive games and full animation authored by artists from EA and Dreamworks respectively. --from publisher description

Digital Video and HD: Algorithms and Interfaces provides a one-stop shop for the theory and engineering of digital video systems. Equally accessible to video engineers and those working in computer graphics, Charles Poynton’s revision to his classic text covers emergent compression systems, including H.264 and VP8/WebM, and augments detailed information on JPEG, DVC, and MPEG-2 systems. This edition also introduces the technical aspects of file-based workflows and outlines the emerging domain of metadata, placing it in the context of digital video processing. Basic concepts of digitization, sampling, quantization, gamma, and filtering Principles of color science as applied to image capture and display Scanning and coding of SDTV and HDTV Video color coding: luma, chroma (4:2:2 component video, 4fSC composite video) Analog NTSC and PAL Studio systems and interfaces Compression technology, including M-JPEG and MPEG-2 Broadcast standards and consumer video equipment

This 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.

The Basics of Professional Networked Media and File-based Workflows

Principles of Multimedia

High Dynamic Range Video

Theory, Algorithms, and Applications

Multidimensional Signal and Color Image Processing Using Lattices

Visualization in Medicine

This book offers readers a single-source reference to the implementation aspects of multirate systems, advances in design of comb decimation filters and multirate filter banks. The authors describe a variety of the most recent applications in fields such as, image and video processing, digital communications, software and cognitive radio.

Audio/Video (AV) systems and Information Technology (IT) have collided. IT is being leveraged to create compelling networked media and file-based workflows. Video Systems in an IT Environment has helped thousands of professionals in broadcast, post and other media disciplines to understand the key aspects the AV/IT "tapeless convergence. World-renowned educator and speaker Al Kovalick adds his conversational and

witty style to this text making the book an enjoyable learning experience. Now in its second edition, this book includes: basics of networked media, storage systems for AV, MXF and other file formats, Web services and SOA, software platforms, 14 methods for high availability design, element management, security, AV technology, transition issues, real-world case studies and much more. Each chapter weaves together IT and AV techniques providing the reader with actionable information on the issues, best practices, processes and principles of seamless AV/IT systems integration.

The colorist is responsible for the critical final stage of refinement of the film and broadcast image. Using all of the controls modern color correction software provides, colorists refine the mood, create style, add polish to scenes, and breathe life into the visuals. The craft of color correction can take considerable trial and error to learn, while the art of color grading takes years to perfect. Alexis Van Hurkman draws on his wealth of industry experience to provide a thoroughly updated edition of what has become the standard guide to color correction. Using a friendly, clear teaching style and a slew of real-world examples and anecdotes, Alexis demonstrates how to achieve professional results for any project, using any number of dedicated grading applications, or even an editing program's built-in color correction tools. From the most basic methods for evaluating and correcting an overall image to the most advanced targeted corrections and creative stylizations, Color Correction Handbook, Second Edition, is your one-stop guide. Among many valuable concepts and techniques, you'll learn to: • Set up a professional color correction environment using the latest technologies and adhere to the most up-to-date standards • Work with log-encoded media and LUTs • Analyze shots quickly and correct errors of color and exposure • Create idealized adjustments for key features such as skin tone, skies, and product shots • Develop strategies for balancing clips in a scene to match one another for continuity, and grading greenscreen clips destined for visual effects • Master a variety of stylistic techniques used to set a scene's mood • Apply principles of color and contrast to add depth and visual interest • Browse valuable research about memory colors, audience preferences, and critical corrections for achieving appealing skin tones and controlled environments • Follow along with the downloadable files that accompany this book, including HD footage, cross-platform exercises, and project files.

Digital Video and HD: Algorithms and Interfaces provides a one-stop shop for the theory and engineering of digital video systems. Equally accessible to video engineers and those working in computer graphics, Charles Poynton's revision to his classic text covers emergent compression systems, including H.264 and VP8/WebM, and augments detailed information on JPEG, DVC, and MPEG-2 systems. This edition also introduces the technical aspects of file-based workflows and outlines the emerging domain of metadata, placing it in the context of digital video processing. Basic concepts of digitization, sampling, quantization, gamma, and filtering Principles of color science as applied to image capture and display Scanning and coding of SDTV and HDTV Video color coding: luma, chroma (4:2:2 component video, 4 f SC composite video) Analog NTSC and PAL Studio systems and interfaces Compression technology, including M-JPEG and MPEG-2 Broadcast standards and consumer video equipment.

Digital Image Analysis and Processing

Vision Models for High Dynamic Range and Wide Colour Gamut Imaging

A Concise Introduction to Data Compression

The VES Handbook of Visual Effects

High-Quality Visual Experience

Interface, Application, and Design

This book focuses on the emerging areas of information networking and its applications, presenting the latest innovative research and development techniques from both theoretical and practical perspectives. Today's networks and information systems are evolving rapidly, and there are new trends and applications in information networking, such as wireless sensor networks, ad hoc networks, peer-to-peer systems, vehicular networks, opportunistic networks, grid and cloud computing, pervasive and ubiquitous computing, multimedia systems, security, multi-agent systems, high-speed networks, and web-based systems. However, since these networks need to be capable of managing the increasing number of users, provide support for different services, guarantee the QoS, and optimize the network resources, a number of research issues and challenges have to be considered in order to provide solutions.

Animators, artists, game developers, and technical directors can master Maya's fundamentals then learn how to automate tasks, personalize user interfaces, build custom tools and solve problems by becoming an expert in the MEL scripting language - all withno programming experience.

To enhance the overall viewing experience (for cinema, TV, games, AR/VR) the media industry is continuously striving to improve image quality. Currently the emphasis is on High Dynamic Range (HDR) and Wide Colour Gamut (WCG) technologies, which yield images with greater contrast and more vivid colours. The uptake of these technologies, however, has been hampered by the significant challenge of understanding the science behind visual perception. Vision Models for High Dynamic Range and Wide Colour Gamut Imaging provides university researchers and graduate students in computer science, computer engineering, vision science, as well as industry R&D engineers, an insight into the science and methods for HDR and WCG. It presents the underlying principles and latest practical methods in a detailed and accessible way, highlighting how the use of vision models is a key element of all state-of-the-art methods for these emerging technologies. Presents the underlying vision science principles and models that are essential to the emerging technologies of HDR and WCG Explores state-of-the-art techniques for tone and gamut mapping Discusses open challenges and future directions of HDR and WCG research

Maureen Stone's field guide to digital color presents a survey of digital color with special emphasis on those fields important for computer graphics. The book provides the foundation for understanding color and its applications, discusses color media and color management and the use of color in computer graphics, including color design and selection. The book provides a guide for anyone who wants to understand and apply digital color. An annotated bibliography provides in-depth references for further study on each topic.

Color Correction Handbook

for Cinematographers, Digital Imaging Technicians, and Camera Assistants

Algorithms and Interfaces
Special Applications of Photogrammetry
Digital Image Processing
Computer Imaging

At the time of rapid technological progress and uptake of High Dynamic Range (HDR) video content in numerous sectors, this book provides an overview of the key supporting technologies, discusses the effectiveness of various techniques, reviews the initial standardization efforts and explores new research directions in all aspects involved in HDR video systems. Topics addressed include content acquisition and production, tone mapping and inverse tone mapping operators, coding, quality of experience, and display technologies. This book also explores a number of applications using HDR video technologies in the automotive industry, medical imaging, spacecraft imaging, driving simulation and watermarking. By covering general to advanced topics, along with a broad and deep analysis, this book is suitable for both the researcher new or familiar to the area. With this book the reader will: Gain a broad understanding of all the elements in the HDR video processing chain Learn the most recent results of ongoing research Understand the challenges and perspectives for HDR video technologies Covers a broad range of topics encompassing the whole processing chain in HDR video systems, from acquisition to display Provides a comprehensive overview of this fast emerging topic Presents upcoming applications taking advantages of HDR

* An overview of digital cinema system requirements * Post production work flow * Color in digital cinema * The digital cinema mastering process * Fundamentals of compression * Security * Basics of audio * Digital distribution * Digital projection technology * Theater systems * The international perspective: Views from Europe, Asia and Latin America * A realistic assessment of the future of digital cinema With contributions by: Richard Crudo, President, American Society of Cinematographers Leon Silverman, Executive Vice President, Laser Pacific Media Corporation Charles Poynton, Color Scientist Chris Carey, Senior Vice President, Studio New Technology, The Walt Disney Studios Bob Lambert, Corporate Senior Vice President New Technology & New Media, The Walt Disney Company Bill Kinder, Pixar Animation Studios Glenn Kennel, DLP Cinema Peter Symes, Manager, Advanced Technology, Thomson Broadcast & Media Solutions Robert Schumann, President, Cinea, Inc., -

This practical guide provides a focus on the implementation of healthcare simulation operations, as well as the type of professional staff required for developing effective programs in this field. Though there is no single avenue in which a person pursues the career of a healthcare simulation technology specialist (HSTS), this book outlines the extensive knowledge and variety of skills one must cultivate to be effective in this role. This book begins with an introduction to healthcare simulation, including personnel, curriculum, and physical space. Subsequent chapters address eight knowledge/skill domains core to the essential aspects of an HSTS. To conclude, best practices and innovations are provided, and the benefits of developing a collaborative relationship with industry stakeholders are discussed. Expertly written text throughout the book is supplemented with dozens of high-quality color illustrations, photographs, and tables. Written and edited by leaders in the field, Comprehensive Healthcare Simulation: Operations, Technology, and Innovative Practice is optimized for a variety of learners, including healthcare educators, simulation directors, as well as those looking to pursue a career in simulation operations as healthcare simulation technology specialists.

This book tries to address different aspects and issues related to video and multimedia distribution over the heterogeneous environment considering broadband satellite networks and general wireless systems where wireless communications and conditions can pose serious problems to the efficient and reliable delivery of content. Specific chapters of the book relate to different research topics covering the architectural aspects of the most famous DVB standard (DVB-T, DVB-S/S2, DVB-H etc.), the protocol aspects and the transmission techniques making use of MIMO, hierarchical modulation and lossy compression. In addition, research issues related to the application layer and to the content semantic, organization and research on the web have also been addressed in order to give a complete view of the problems. The network technologies used in the book are mainly broadband wireless and satellite networks. The book can be read by intermediate students, researchers, engineers or people with some knowledge or specialization in network topics.

Understanding Virtual Reality
The Filmmaker ’ s Guide to Digital Imaging
Video Systems in an IT Environment
Creation, Processing and Interactivity of High-Resolution and High-Dimensional Video Signals
Digital Video and HD, 2nd Edition
The 22nd International Conference on Network-Based Information Systems (NBiS-2019)

Photogrammetry is widely accepted as one of the best surveying methods to acquire tridimensional data without direct contact with the obje but its high operational costs in equipment and personnel somewhat limit its application in mapping. However, with the development of digit photogrammetry in the 1990's, it was possible to introduce automated processes and reduce the personnel costs. In the following years, th of computer hardware, digital cameras and positioning sensors has been lowering, making photogrammetry more accessible to other engineering fields, such as architecture, archeology and health fields. This book shows the results of the work of researchers from different professional backgrounds, which evaluate the uses of photogrammetry, including issues of the data, processing, as well as the solutions developed for some surveying types that can be extended to many applications.

It’s a whole new world for cinematographers, camera assistants, and postproduction artists. New equipment, new methods, and new technologies have to be learned and mastered. New roles such as that of the DIT (Digital Imaging Technician), Digital Loader, and Data Manager are integral to today’s motion picture production process. Take your mastery of these new tools, techniques, and roles to the next level with this cutting-edge roadmap from esteemed author and filmmaker Blain Brown. The Filmmaker’s Guide to Digital Imaging covers both the theory and the practice, featuring full-color, in-depth coverage of essential terminology, technology, and industry-standard best-practices. Brown covers new industry-wide production standards such as ASC-CDL and the ACES workflow. Interviews with professional cinematographers and DITs working on Hollywood productions equip you with knowledge that is essential if you want to work in today’s motion picture industry, whether as a cinematographer, DIT, Digital Loader, Data Manager, camera assistant, editor, or VFX artist. Topics include: Digital sensors and cameras The structure of digital images Waveform monitors, vectorscopes, and test charts Using linear, gamm and log encoded video files Exposure techniques for HD and UltraHD Understanding digital color Codecs and file formats The DIT cart Downloading, ingesting, and managing video files Workflow from camera to DIT cart to post Using metadata and timecode The companion website (www.focalpress.com/cw/brown) features additional material, including demonstrations and interviews with experienced DITs and cinematographers.

High dynamic range imaging produces images with a much greater range of light and color than conventional imaging. The effect is stunnin as great as the difference between black-and-white and color television. High Dynamic Range Imaging is the first book to describe this exci new field that is transforming the media and entertainment industries. Written by the foremost researchers in HDRI, it will explain and define this new technology for anyone who works with images, whether it is for computer graphics, film, video, photography, or lighting design. * Written by the leading researchers in HDRI * Covers all the areas of high dynamic range imaging including capture devices, display devices file formats, dynamic range reduction, and image-based lighting * Includes a DVD with over 4 GB of HDR images as well as source code a binaries for numerous tone reproduction operators for Windows, Linux, and Mac OS X

Robotic vision, the combination of robotics and computer vision, involves the application of computer algorithms to data acquired from sensors. The research community has developed a large body of such algorithms but for a newcomer to the field this can be quite daunting over 20 years the author has maintained two open-source MATLAB® Toolboxes, one for robotics and one for vision. They provide

implementations of many important algorithms and allow users to work with real problems, not just trivial examples. This book makes the fundamental algorithms of robotics, vision and control accessible to all. It weaves together theory, algorithms and examples in a narrative th covers robotics and computer vision separately and together. Using the latest versions of the Toolboxes the author shows how complex problems can be decomposed and solved using just a few simple lines of code. The topics covered are guided by real problems observed b author over many years as a practitioner of both robotics and computer vision. It is written in an accessible but informative style, easy to rea and absorb, and includes over 1000 MATLAB and Simulink® examples and over 400 figures. The book is a real walk through the fundamer of mobile robots, arm robots. then camera models, image processing, feature extraction and multi-view geometry and finally bringing it all together with an extensive discussion of visual servo systems. This second edition is completely revised, updated and extended with cover Lie groups, matrix exponentials and twists; inertial navigation; differential drive robots; lattice planners; pose-graph SLAM and map making; restructured material on arm-robot kinematics and dynamics; series-elastic actuators and operational-space control; Lab color spaces; light field cameras; structured light, bundle adjustment and visual odometry; and photometric visual servoing. “An authoritative book, reaching across fields, thoughtfully conceived and brilliantly accomplished!” OUSSAMA KHATIB, Stanford

Camera Image Quality Benchmarking, Enhanced Edition

Introduction to Color Imaging Science

A Professional Handbook

Robotics, Vision and Control

Understanding Digital Cinema

Color Imaging

Today truly useful and interactive graphics are available on affordable computers. While hardware progress has been impressive, widespread gains in software expertise have come more slowly. Information about advanced techniques—beyond those learned in introductory computer graphics texts—is not as easy to come by as inexpensive hardware. This book brings the graphics programmer beyond the basics and introduces them to advanced knowledge that is hard to obtain outside of an intensive CG work environment. The book is about graphics techniques—those that don’t require esoteric hardware or custom graphics libraries—that are written in a comprehensive style and do useful things. It covers graphics that are not covered well in your old graphics textbook. But it also goes further, teaching you how to apply those techniques in real world applications, filling real world needs. Emphasizes the algorithmic side of computer graphics, with a practical application focus, and provides usable techniques for real world problems. Serves as an introduction to the techniques that are hard to obtain outside of an intensive computer graphics work environment. Sophisticated and novel programming techniques are implemented in C using the OpenGL library, including coverage of color and lighting; texture mapping; blending and compositing; antialiasing; image processing; special effects; natural phenomena; artistic and non-photorealistic techniques, and many others.

Last few years have seen rapid acceptance of high-definition television (HDTV) technology around the world. This technology has been hugely successful in delivering more realistic television experience at home and accurate imaging for professional applications. Adoption of high definition continues to grow as consumers demand enhanced features and greater quality of content. Following this trend, natural evolution of visualisation technologies will be in the direction of fully realistic visual experience and highly precise imaging. However, using the content of even higher resolution and quality is not straightforward as such videos require significantly higher access bandwidth and more processing power. Therefore, methods for radical reduction of video bandwidth are crucial for realisation of high visual quality. Moreover, it is desirable to look into other ways of accessing visual content, solution to which lies in innovative schemes for content delivery and consumption. This book presents selected chapters covering technologies that will enable greater flexibility in video content representation and allow users to access content from any device and to interact with it.

This clearly written book offers readers a succinct foundation to the most important topics in the field of data compression. Part I presents the basic approaches to data compression and describes a few popular techniques and methods that are commonly used to compress data. The reader will discover essential concepts. Part II concentrates on advanced techniques, such as arithmetic coding, orthogonal transforms, subband transforms and Burrows-Wheeler transform. This book is the perfect reference for advanced undergraduates in computer science and requires a minimum of mathematics. An author-maintained website provides errata and auxiliary material.

High Dynamic Range Imaging

Digital Video

Digital Video and HD

MEL Scripting for Maya Animators