

Chenwei Deng · Lin Ma  
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# Visual Signal Quality Assessment

Quality of Experience (QoE)



Springer

# Visual Signal Quality Assessment Quality Of Experience Qoe

**Ce Zhu,Yin Zhao,Lu Yu,Masayuki  
Tanimoto**



## **Visual Signal Quality Assessment Quality Of Experience Qoe:**

**Visual Signal Quality Assessment** Chenwei Deng, Lin Ma, Weisi Lin, King Ngi Ngan, 2014-11-11 This book provides comprehensive coverage of the latest trends advances in subjective and objective quality evaluation for traditional visual signals such as 2D images and video as well as the most recent challenges for the field of multimedia quality assessment and processing such as mobile video and social media Readers will learn how to ensure the highest storage delivery transmission quality of visual content including image video graphics animation etc from the server to the consumer under resource constraints such as computation bandwidth storage space battery life etc

**Multimedia Quality of Experience (QoE)** Chang Wen Chen, Periklis Chatzimisios, Tasos Dagiuklas, Luigi Atzori, 2016-01-19 Multimedia Quality of Experience QoE Current Status and Future Requirements Multimedia Quality of Experience QoE Current Status and Future Requirements discusses the current status of QoE Quality of Experience research providing guidelines on QoE assessment and management practice Moreover it covers many different aspects of QoE research including definitions standardization ITU ETSI IEEE IETF measurement management and architectures In addition the authors bring together contributions from recognized experts worldwide in the area of subjective and objective QoE video assessment Discusses the current status of QoE research reporting the latest advances from various standardization bodies Provides guidelines on QoE assessment and management practice Explores methods means and architectures of QoE Considers future requirements of QoE

**Camera Image Quality Benchmarking** Jonathan B. Phillips, Henrik Eliasson, 2018-01-09 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

**Proceedings of ELM-2014 Volume 2** Jiuwen Cao,Kezhi Mao,Erik Cambria,Zhihong Man,Kar-Ann Toh,2014-12-09 This book contains some selected papers from the International Conference on Extreme Learning Machine 2014 which was held in Singapore December 8 10 2014 This conference brought together the researchers and practitioners of Extreme Learning Machine ELM from a variety of fields to promote research and development of learning without iterative tuning The book covers theories algorithms and applications of ELM It gives the readers a glance of the most recent advances of ELM

*Proceedings of the 15th International Conference on Ubiquitous Computing & Ambient Intelligence (UCAmI 2023)* José Bravo,Gabriel Urzáiz,2023-11-24 This book serves as a comprehensive compilation of groundbreaking research endeavors within the realms of ambient intelligence and ubiquitous computing These initiatives are pivotal in enabling both researchers and practitioners to discern recent breakthroughs and emerging frontiers in these fields Encompassing a wide array of domains including Ambient Active and Assisted Living A3L the Internet of Things IoT Smart Environments Data Science and Human Ambient Interaction acts as a valuable resource for scholars professionals and graduate students alike The primary aim of this book is to empower individuals within the academic and professional community to harness this wealth of knowledge It equips them to tackle innovative challenges and engineer smart and ubiquitous solutions that will shape the landscape of the next decade By amalgamating insights from various facets of ambient intelligence and ubiquitous computing this book encourages cross disciplinary collaboration and fosters a holistic understanding of the field Thus it not only highlights the recent strides in these areas but also serves as a roadmap for future exploration and innovation paving the way for a smarter and more interconnected world

*Intelligence Science and Big Data Engineering. Image and Video Data Engineering* Xiaofei He,Xinbo Gao,Yanning Zhang,Zhi-Hua Zhou,Zhi-Yong Liu,Baochuan Fu,Fuyuan Hu,Zhancheng Zhang,2015-10-13 The two volume set LNCS 9242 9243 constitutes the proceedings of the 5th International Conference on Intelligence Science and Big Data Engineering IScIDE 2015 held in Suzhou China in June 2015 The total of 126 papers presented in the proceedings was carefully reviewed and selected from 416 submissions They deal with big data neural networks image processing computer vision pattern recognition and graphics object detection dimensionality reduction and manifold learning unsupervised learning and clustering anomaly detection semi supervised learning

**Versatile Video Coding** Humberto Ochoa Dominguez,K.R. Rao,2022-09-01 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

*Handbook of Research on Wireless Multimedia: Quality of Service and Solutions* Cranley, Nicola, Murphy, Liam, 2008-07-31 This book highlights and discusses the underlying QoS issues that arise in the delivery of real time multimedia services over wireless networks Provided by publisher

**Digital Multimedia Communications** Guangtao Zhai, Jun Zhou, Long Ye, Hua Yang, Ping An, 2025-04-07 This volume contains 27 selected papers presented at IFTC 2024 21st International Forum of Digital Multimedia Communication held in Lingshui Hainan China on November 28 29 2024 The 55 full papers included in this 2 volume set were carefully reviewed and selected from 146 submissions They were organized in topical sections as follows CCIS 2441 Affective Computing Graphics Image Processing for Virtual Reality Large Language Models Multimedia Communication Application of Deep Learning and Video Analysis CCIS 2442 Human and Interactive Media Image Processing Quality Assessment and Source Coding

**Quality of Experience** Sebastian Möller, Alexander Raake, 2014-07-08 This pioneering book develops definitions and concepts related to Quality of Experience in the context of multimedia and telecommunications related

applications systems and services and applies these to various fields of communication and media technologies The editors bring together numerous key protagonists of the new discipline Quality of Experience and combine the state of the art knowledge in one single volume      **Quality of Experience Engineering for Customer Added Value Services**

Abdelhamid Mellouk, Antonio Cuadra-Sanchez, 2014-07-09 The main objective of the book is to present state of the art research results and experience reports in the area of quality monitoring for customer experience management addressing topics which are currently important such as service aware future Internet architecture for Quality of Experience QoE management on multimedia applications In recent years multimedia applications and services have experienced a sudden growth Today video display is not limited to the traditional areas of movies and television on TV sets but these applications are accessed in different environments with different devices and under different conditions In addition the continuous emergence of new services along with increasing competition is forcing network operators and service providers to focus all their efforts on customer satisfaction although determining the QoE is not a trivial task This book addresses the QoE for improving customer perception when using added value services offered by service providers from evaluation to monitoring and other management processes      **High Efficiency Video Coding and Other Emerging Standards** K.R. Rao, J.J.

Hwang, D. N. Kim, 2017-07-21 High Efficiency Video Coding and Other Emerging Standards provides an overview of high efficiency video coding HEVC and all its extensions and profiles There are nearly 300 projects and problems included and about 400 references related to HEVC alone Next generation video coding NGVC beyond HEVC is also described Other video coding standards such as AVS2 DAALA THOR VP9 Google DIRAC VC1 and AV1 are addressed and image coding standards such as JPEG JPEG LS JPEG2000 JPEG XR JPEG XS JPEG XT and JPEG Pleno are also listed Understanding of these standards and their implementation is facilitated by overview papers standards documents reference software software manuals test sequences source codes tutorials keynote speakers panel discussions reflector and ftp web sites all in the public domain Access to these categories is also provided      *Immersive Video Technologies* Giuseppe Valenzise, Martin Alain, Emin

Zerman, Cagri Ozcinar, 2022-09-29 Get a broad overview of the different modalities of immersive video technologies from omnidirectional video to light fields and volumetric video from a multimedia processing perspective From capture to representation coding and display video technologies have been evolving significantly and in many different directions over the last few decades with the ultimate goal of providing a truly immersive experience to users After setting up a common background for these technologies based on the plenoptic function theoretical concept Immersive Video Technologies offers a comprehensive overview of the leading technologies enabling visual immersion including omnidirectional 360 degrees video light fields and volumetric video Following the critical components of the typical content production and delivery pipeline the book presents acquisition representation coding rendering and quality assessment approaches for each immersive video modality The text also reviews current standardization efforts and explores new research directions With

this book the reader will a gain a broad understanding of immersive video technologies that use three different modalities omnidirectional video light fields and volumetric video b learn about the most recent scientific results in the field including the recent learning based methodologies and c understand the challenges and perspectives for immersive video technologies Describes the whole content processing chain for the main immersive video modalities omnidirectional video light fields and volumetric video Offers a common theoretical background for immersive video technologies based on the concept of plenoptic function Presents some exemplary applications of immersive video technologies

**Advances in Multimedia Information Processing - PCM 2017** Bing Zeng, Qingming Huang, Abdulmotaleb El Saddik, Hongliang Li, Shuqiang Jiang, Xiaopeng Fan, 2018-05-09 The two volume set LNCS 10735 and 10736 constitutes the thoroughly refereed proceedings of the 18th Pacific Rim Conference on Multimedia PCM 2017 held in Harbin China in September 2017 The 184 full papers presented were carefully reviewed and selected from 264 submissions The papers are organized in topical sections on Best Paper Candidate Video Coding Image Super resolution Deblurring and Dehazing Person Identity and Emotion Tracking and Action Recognition Detection and Classification Multimedia Signal Reconstruction and Recovery Text and Line Detection Recognition Social Media 3D and Panoramic Vision Deep Learning for Signal Processing and Understanding Large Scale Multimedia Affective Computing Sensor enhanced Multimedia Systems Content Analysis Coding Compression Transmission and Processing

**Connected Media in the Future Internet Era** Ahmet Kondo, Tasos Dagiuklas, 2016-10-08 This book describes recent innovations in 3D media and technologies with coverage of 3D media capturing processing encoding and adaptation networking aspects for 3D Media and quality of user experience QoE The contributions are based on the results of the FP7 European Project ROMEO which focuses on new methods for the compression and delivery of 3D multi view video and spatial audio as well as the optimization of networking and compression jointly across the future Internet The delivery of 3D media to individual users remains a highly challenging problem due to the large amount of data involved diverse network characteristics and user terminal requirements as well as the user s context such as their preferences and location As the number of visual views increases current systems will struggle to meet the demanding requirements in terms of delivery of consistent video quality to fixed and mobile users ROMEO will present hybrid networking solutions that combine the DVB T2 and DVB NGH broadcast access network technologies together with a QoE aware Peer to Peer P2P distribution system that operates over wired and wireless links Live streaming 3D media needs to be received by collaborating users at the same time or with imperceptible delay to enable them to watch together while exchanging comments as if they were all in the same location This book is the last of a series of three annual volumes devoted to the latest results of the FP7 European Project ROMEO The present volume provides state of the art information on 3D multi view video spatial audio networking protocols for 3D media P2P 3D media streaming and 3D Media delivery across heterogeneous wireless networks among other topics Graduate students and professionals in electrical engineering and computer science with an interest in 3D Future Internet

Media will find this volume to be essential reading *Human Perception of Visual Information* Bogdan Ionescu, Wilma A. Bainbridge, Naila Murray, 2022-01-01 Recent years have witnessed important advancements in our understanding of the psychological underpinnings of subjective properties of visual information such as aesthetics memorability or induced emotions Concurrently computational models of objective visual properties such as semantic labelling and geometric relationships have made significant breakthroughs using the latest achievements in machine learning and large scale data collection There has also been limited but important work exploiting these breakthroughs to improve computational modelling of subjective visual properties The time is ripe to explore how advances in both of these fields of study can be mutually enriching and lead to further progress This book combines perspectives from psychology and machine learning to showcase a new unified understanding of how images and videos influence high level visual perception particularly interestingness affective values and emotions aesthetic values memorability novelty complexity visual composition and stylistic attributes and creativity These human based metrics are interesting for a very broad range of current applications ranging from content retrieval and search storytelling to targeted advertising education and learning and content filtering Work already exists in the literature that studies the psychological aspects of these notions or investigates potential correlations between two or more of these human concepts Attempts at building computational models capable of predicting such notions can also be found using state of the art machine learning techniques Nevertheless their performance proves that there is still room for improvement as the tasks are by nature highly challenging and multifaceted requiring thought on both the psychological implications of the human concepts as well as their translation to machines **3D-TV System with Depth-Image-Based Rendering** Ce Zhu, Yin Zhao, Lu Yu, Masayuki Tanimoto, 2012-08-15 Riding on the success of 3D cinema blockbusters and advances in stereoscopic display technology 3D video applications have gathered momentum in recent years 3D TV System with Depth Image Based Rendering Architectures Techniques and Challenges surveys depth image based 3D TV systems which are expected to be put into applications in the near future Depth image based rendering DIBR significantly enhances the 3D visual experience compared to stereoscopic systems currently in use DIBR techniques make it possible to generate additional viewpoints using 3D warping techniques to adjust the perceived depth of stereoscopic videos and provide for auto stereoscopic displays that do not require glasses for viewing the 3D image The material includes a technical review and literature survey of components and complete systems solutions for technical issues and implementation of prototypes The book is organized into four sections System Overview Content Generation Data Compression and Transmission and 3D Visualization and Quality Assessment This book will benefit researchers developers engineers and innovators as well as advanced undergraduate and graduate students working in relevant areas Signal and Information Processing, Networking and Computers Na Chen, Tingting Huang, 2016-04-14 The First International Conference on Signal and Information Processing Networking and Computers ICSINC focuses on the key technologies and challenges of signal and



information processing schemes network application computer theory and application etc Topics in this conference include Information Theory The work contains state of the art information theory and applications Academic Press Library in Signal Processing, Volume 6 ,2017-11-28 Academic Press Library in Signal Processing Volume 6 Image and Video Processing and Analysis and Computer Vision is aimed at university researchers post graduate students and R D engineers in the industry providing a tutorial based comprehensive review of key topics and technologies of research in both image and video processing and analysis and computer vision The book provides an invaluable starting point to the area through the insight and understanding that it provides With this reference readers will quickly grasp an unfamiliar area of research understand the underlying principles of a topic learn how a topic relates to other areas and learn of research issues yet to be resolved Presents a quick tutorial of reviews of important and emerging topics of research Explores core principles technologies algorithms and applications Edited and contributed by international leading figures in the field Includes comprehensive references to journal articles and other literature upon which to build further more detailed knowledge Perceptual Digital Imaging Rastislav Lukac,2017-12-19 Visual perception is a complex process requiring interaction between the receptors in the eye that sense the stimulus and the neural system and the brain that are responsible for communicating and interpreting the sensed visual information This process involves several physical neural and cognitive phenomena whose understanding is essential to design effective and computationally efficient imaging solutions Building on advances in computer vision image and video processing neuroscience and information engineering perceptual digital imaging greatly enhances the capabilities of traditional imaging methods Filling a gap in the literature Perceptual Digital Imaging Methods and Applications comprehensively covers the system design implementation and application aspects of this emerging specialized area It gives readers a strong fundamental understanding of theory and methods providing a foundation on which solutions for many of the most interesting and challenging imaging problems can be built The book features contributions by renowned experts who present the state of the art and recent trends in image acquisition processing storage display and visual quality evaluation They detail advances in the field and explore human visual system driven approaches across a broad spectrum of applications including Image quality and aesthetics assessment Digital camera imaging White balancing and color enhancement Thumbnail generation Image restoration Super resolution imaging Digital halftoning and dithering Color feature extraction Semantic multimedia analysis and processing Video shot characterization Image and video encryption Display quality enhancement This is a valuable resource for readers who want to design and implement more effective solutions for cutting edge digital imaging computer vision and multimedia applications Suitable as a graduate level textbook or stand alone reference for researchers and practitioners it provides a unique overview of an important and rapidly developing research field

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