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3D Visual Content Creation, Coding and Delivery - Pedro Amado Assunção 2018-07-28
This book covers the different aspects of modern 3D multimedia technologies by addressing several elements of 3D visual communications systems, using diverse content formats, such as stereo video, video-plus-depth and multiview, and coding schemes for delivery over networks. It also presents the latest advances and research results in regards to objective and subjective quality evaluation of 3D visual content, extending the human factors affecting the perception of quality to emotional states. The contributors describe technological developments in 3D visual communications, with particular emphasis on state-of-the-art advances in acquisition of 3D visual scenes and emerging 3D visual representation formats, such as: multi-view plus depth and light field; evolution to freeview and light-field representation; compression methods and robust delivery systems; and coding and delivery over various channels. Simulation tools, testbeds and datasets that are useful for advanced research and experimental studies in the field of 3D multimedia delivery services and applications are covered. The international group of contributors also explore the research problems and challenges in the field of immersive visual communications, in order to identify research directions with substantial economic and social impact. 3D Visual Content Creation, Coding and Delivery provides valuable information to engineers and computer scientists developing novel products and services with emerging 3D multimedia technologies, by discussing the advantages and current limitations that need to be addressed in order to develop their products further. It will also be of interest to students and researchers in the field of multimedia services and applications, who are particularly interested in advances bringing significant potential impact on future technological developments.

Parametric Packet-based Audiovisual Quality Model for IPTV services - Marie-Neige Garcia 2014-06-20
This volume presents a parametric, packet-based, comprehensive model to measure and predict the audiovisual quality of Internet Protocol Television services as it is likely to be perceived by the user. The comprehensive model is divided into three sub-models referred to as the audio model, the video model, and the audiovisual model. The audio and video models take as input a parametric description of the audiovisual processing path, and deliver distinct estimates for both the audio and video quality. These distinct estimates are eventually used as input data for the audiovisual model. This model provides an overall estimate of the perceived audiovisual quality in total. The parametric description can be used as diagnostic information. The quality estimates and diagnostic information can be practically applied to enhance network deployment and operations. Two applications come to mind in particular: Network planning and network service quality monitoring. The audio model can be used indifferently for both applications. However, two variants of the video model have been developed in order to address particular needs of the applications mentioned above. The comprehensive model covers effects due to resolution, coding, and IP-packet loss in case of RTP-type transport. The model applied to quality monitoring is standardized under the ITU-T Recommendations P.1201 and P.1201.2.

Pharmaceutical Quality by Design - Sarwar Beg 2019-03-27
Pharmaceutical Quality by Design: Principles and Applications discusses the Quality by Design (QbD) concept implemented by regulatory agencies to ensure the development of a consistent and high-quality pharmaceutical product that safely provides the maximum therapeutic benefit to patients. The book walks readers through the QbD framework by covering the fundamental principles of QbD, the current regulatory requirements, and the applications of QbD at various stages of pharmaceutical product development, including drug substance and excipient development, analytical development, formulation development, dissolution testing, manufacturing, stability studies, bioequivalence testing, risk and assessment, and clinical trials.

Contributions from global leaders in QbD provide specific insight in its application in a diversity of pharmaceutical products, including nanopharmaceuticals, biopharmaceuticals, and vaccines. The inclusion of illustrations, practical examples, and case studies makes this book a useful reference guide to pharmaceutical scientists and researchers who are engaged in the formulation of various delivery systems and the analysis of pharmaceutical product development and drug manufacturing process. Discusses vital QbD precepts and fundamental aspects of QbD implementation in the pharma, biopharma and biotechnology industries Provides helpful illustrations, practical examples and research case studies to explain QbD concepts to readers Includes contributions from global leaders and experts from academia, industry and regulatory agencies

MediaSync - Mario Montagud 2018-03-26
This book provides an approachable overview of the most recent advances in the fascinating field of media synchronization (mediasync), gathering contributions from the most representative and influential experts. Understanding the challenges of this field in the current multi-sensory, multi-device, and multi-protocol world is not an easy task. The book revisits the foundations of mediasync, including theoretical frameworks and models, highlights ongoing research efforts, like hybrid broadband broadcast (HBB) delivery and users' perception modeling (i.e., Quality of Experience or QoE), and paves the way for the future (e.g., towards the deployment of multi-sensory and ultra-realistic experiences). Although many advances around mediasync have been devised and deployed, this area of research is getting renewed attention to overcome remaining challenges in the next-generation (heterogeneous and ubiquitous) media ecosystem. Given the significant advances in this research area, its current relevance and the multiple disciplines it involves, the availability of a reference book on mediasync becomes necessary. This book fills the gap in this context. In particular, it addresses key aspects and reviews the most relevant contributions within the mediasync research space, from different perspectives. Mediasync: Handbook on Multimedia Synchronization is the perfect

companion for scholars and practitioners that want to acquire strong knowledge about this research area, and also approach the challenges behind ensuring the best mediated experiences, by providing the adequate synchronization between the media elements that constitute these experiences.

Influencing Factors in Speech Quality Assessment Using Crowdsourcing - Rafael Zequeira Jiménez 2022
This book evaluates the impact of relevant factors affecting the results of speech quality assessment studies carried out in crowdsourcing. The author describes how these factors relate to the test structure, the effect of environmental background noise, and the influence of language differences. He details multiple user-centered studies that have been conducted to derive guidelines for reliable collection of speech quality scores in crowdsourcing. Specifically, different questions are addressed such as the optimal number of speech samples to include in a listening task, the influence of the environmental background noise in the speech quality ratings, as well as methods for classifying background noise from web audio recordings, or the impact of language proficiency in the user perception of speech quality. Ultimately, the results of these studies contributed to the definition of the ITU-T Recommendation P.808 that defines the guidelines to conduct speech quality studies in crowdsourcing.

New Scientist - 1999

Quality of Experience - Sebastian Möller 2016-10-01
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.

Research Anthology on Concepts, Applications, and Challenges of FinTech - Management Association, Information Resources 2021-02-05

FinTech, an abbreviated term for financial technology, is a digital revolution changing the way banking and financial services are being used both by individuals and businesses. As these changes continue to take place, the financial industry is focused on technological innovation and feeding into this digital revolution to better serve consumers who are looking for easier ways to invest, transfer money, use banking services, and more. FinTech is increasing accessibility to financial services, automating these services, expanding financial options, and enabling online payments and banking. While the benefits are being continually seen and this technology is becoming more widely accepted, there are still challenges facing the technology that include security concerns. To understand FinTech and its role in society, both the benefits and challenges must be reviewed and discussed for a holistic view on the digital innovations changing the face of the financial industry. The Research Anthology on Concepts, Applications, and Challenges of FinTech covers the latest technologies in FinTech with a comprehensive view of the impact on the industry, where these technologies are implemented, how they are improving financial services, and the security applications and challenges being faced. The chapters cover the options FinTech has unlocked, such as mobile banking and virtual transactions, while also focusing on the workings of the technology itself and security applications, such as blockchain and cryptocurrency. This book is a valuable reference tool for accountants, bankers, financial planners, financial analysts, business managers, economists, computer scientists, academicians, researchers, financial professionals, and students.

Autonomous Control for a Reliable Internet of Services - Ivan Ganchev 2018-05-30
This open access book was prepared as a Final Publication of the COST Action IC1304 "Autonomous Control for a Reliable Internet of Services (ACROSS)". The book contains 14 chapters and constitutes a show-case of the main outcome of the Action in line with its scientific goals. It will serve as a valuable reference for undergraduate and post-graduate students, educators, faculty members, researchers, engineers, and

research strategists working in this field. The explosive growth of the Internet has fundamentally changed the global society. The emergence of concepts like SOA, SaaS, PaaS, IaaS, NaaS, and Cloud Computing in general has catalyzed the migration from the information-oriented Internet into an Internet of Services (IoS). This has opened up virtually unbounded possibilities for the creation of new and innovative services that facilitate business processes and improve the quality of life. However, this also calls for new approaches to ensuring the quality and reliability of these services. The objective of this book is, by applying a systematic approach, to assess the state-of-the-art and consolidate the main research results achieved in this area.

Immersive Video Technologies - Giuseppe Valenzise 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

Quality of Synthetic Speech - Florian Hinterleitner 2017-04-07
This book reviews research towards perceptual quality dimensions of synthetic speech, compares these findings with the state of the art, and derives a set of five universal perceptual quality dimensions for TTS signals. They are: (i) naturalness of voice, (ii) prosodic quality, (iii) fluency and intelligibility, (iv) absence of disturbances, and (v) calmness. Moreover, a test protocol for the efficient indentification of those dimensions in a listening test is introduced. Furthermore, several factors influencing these dimensions are examined. In addition, different techniques for the instrumental quality assessment of TTS signals are introduced, reviewed and tested. Finally, the requirements for the integration of an instrumental quality measure into a concatenative TTS system are examined.

Quality of Experience Engineering for Customer Added Value Services - Abdelhamid Mellouk 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.

Human Interface and the Management of Information: Applications and Services - Sakae Yamamoto 2016-07-04
The two-volume set LNCS 9734 and 9735 constitutes the refereed proceedings of the Human Interface and the Management of Information thematic track, held as part of the 18th International Conference on Human-Computer Interaction, HCII 2016, held in Toronto, Canada, in July 2016. HCII 2016 received a total of 4354 submissions of which 1287 papers were accepted for publication after a careful reviewing process. These papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems. The papers accepted for presentation thoroughly cover the entire field of human-computer interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas This volume contains papers addressing the following major topics: communication, collaboration and decision-making support, information in e-learning and e-education, access to cultural heritage, creativity and art, e-science and e-research, information in health and well-being.

Multimedia Quality of Experience (QoE) - Chang Wen Chen 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

The Technology of Binaural Understanding - Jens Blauert

2020-08-12
Sound, devoid of meaning, would not matter to us. It is the information sound conveys that helps the brain to understand its environment. Sound and its underlying meaning are always associated with time and space. There is no sound without spatial properties, and the brain always organizes this information within a temporal–spatial framework. This book is devoted to understanding the importance of meaning for spatial and related further aspects of hearing, including cross-modal inference. People, when exposed to acoustic stimuli, do not react directly to what they hear but rather to what they hear means to them. This semiotic maxim may not always apply, for instance, when the reactions are reflexive. But, where it does apply, it poses a major challenge to the builders of models of the auditory system. Take, for example, an auditory model that is meant to be implemented on a robotic agent for autonomous search-&-rescue actions. Or think of a system that can perform judgments on the sound quality of multimedia-reproduction systems. It becomes immediately clear that such a system needs • Cognitive capabilities, including substantial inherent knowledge • The ability to integrate information across different sensory modalities To realize these functions, the auditory system provides a pair of sensory organs, the two ears, and the means to perform adequate preprocessing of the signals provided by the ears. This is realized in the subcortical parts of the auditory system. In the title of a prior book, the term Binaural Listening is used to indicate a focus on sub-cortical functions. Psychoacoustics and auditory signal processing contribute substantially to this area. The preprocessed signals are then forwarded to the cortical parts of the auditory system where, among other things, recognition, classification, localization, scene analysis, assignment of meaning, quality assessment, and action planning take place. Also, information from different sensory modalities is integrated at this level. Between sub-cortical and cortical regions of the auditory system, numerous feedback loops exist that ultimately support the high complexity and plasticity of the auditory system. The current book concentrates on these cognitive functions. Instead of processing signals, processing symbols is now the

predominant modeling task. Substantial contributions to the field draw upon the knowledge acquired by cognitive psychology. The keyword Binaural Understanding in the book title characterizes this shift. Both books, The Technology of Binaural Listening and the current one, have been stimulated and supported by AABBA, an open research group devoted to the development and application of models of binaural hearing. The current book is dedicated to technologies that help explain, facilitate, apply, and support various aspects of binaural understanding. It is organized into five parts, each containing three to six chapters in order to provide a comprehensive overview of this emerging area. Each chapter was thoroughly reviewed by at least two anonymous, external experts. The first part deals with the psychophysical and physiological effects of Forming and Interpreting Aural Objects as well as the underlying models. The fundamental concepts of reflexive and reflective auditory feedback are introduced. Mechanisms of binaural attention and attention switching are covered—as well as how auditory Gestalt rules facilitate binaural understanding. A general blackboard architecture is introduced as an example of how machines can learn to form and interpret aural objects to simulate human cognitive listening. The second part, Configuring and Understanding Aural Space, focuses on the human understanding of complex three-dimensional environments—covering the psychological and biological fundamentals of auditory space formation. This part further addresses the human mechanisms used to process information and interact in complex reverberant environments, such as concert halls and forests, and additionally examines how the auditory system can learn to understand and adapt to these environments. The third part is dedicated to Processing Cross-Modal Inference and highlights the fundamental human mechanisms used to integrate auditory cues with cues from other modalities to localize and form perceptual objects. This part also provides a general framework for understanding how complex multimodal scenes can be simulated and rendered. The fourth part, Evaluating Aural-scene Quality and Speech Understanding, focuses on the object-forming aspects of binaural listening and understanding. It addresses cognitive mechanisms involved in both the understanding of speech and the processing of nonverbal information such as Sound Quality and Quality-of- Experience. The aesthetic judgment of rooms is also discussed in this context. Models that simulate underlying human processes and performance are covered in addition to techniques for rendering virtual environments that can then be used to test these models. The fifth part deals with the Application of Cognitive Mechanisms to Audio Technology. It highlights how cognitive mechanisms can be utilized to create spatial auditory illusions using binaural and other 3D-audio technologies. Further, it covers how cognitive binaural technologies can be applied to improve human performance in auditory displays and to develop new auditory technologies for interactive robots. The book concludes with the application of cognitive binaural technologies to the next generation of hearing aids.

Recent Trends in Computer Applications - Jihad Mohamad Alja'am 2018-11-19
This edited volume presents the best chapters presented during the international conference on computer and applications ICCA'17 which was held in Dubai, United Arab Emirates in September 2017. Selected chapters present new advances in digital information, communications and multimedia. Authors from different countries show and discuss their findings, propose new approaches, compare them with the existing ones and include recommendations. They address all applications of computing including (but not limited to) connected health, information security, assistive technology, edutainment and serious games, education, grid computing, transportation, social computing, natural language processing, knowledge extraction and reasoning, Arabic apps, image and pattern processing, virtual reality, cloud computing, haptics, information security, robotics, networks algorithms, web engineering, big data analytics, ontology, constraints satisfaction, cryptography and steganography, Fuzzy logic, soft computing, neural networks, artificial intelligence, biometry and bio-informatics, embedded systems, computer graphics, algorithms and optimization, Internet of things and smart cities. The book can be used by researchers and practitioners to discover

the recent trends in computer applications. It opens a new horizon for research discovery works locally and internationally.

Mobile Multimedia Communications: Concepts, Applications, and Challenges - Karmakar, Gour 2007-11-30

With rapid growth of the Internet, the applications of multimedia are burgeoning in every aspect of human life including communication networks and wireless and mobile communications. Mobile Multimedia Communications: Concepts, Applications and Challenges captures defining research on all aspects and implications of the accelerated progress of mobile multimedia technologies. Covered topics include fundamental network infrastructures, modern communication features such as wireless and mobile multimedia protocols, personal communication systems, mobility and resource management, and security and privacy issues. A complete reference to topics driving current and potential future development of mobile technologies, this essential addition to library collections will meet the needs of researchers in a variety of related fields.

Assessing the Quality of Experience of Cloud Gaming Services - Steven Schmidt 2022-09-07

This book provides an overview of concepts and challenges in intis investigated using structural equation modeling. The conveyed understanding of gaming QoE, empirical eraction quality in the domain of cloud gaming services. The author presents a unified evaluation approach by combining quantitative subjective assessment methods in a concise way. The author discusses a measurement tool, Gaming Input Quality Scale (GIPS), that assesses the interaction quality of such a service available. Furthermore, the author discusses a new framework to assess gaming Quality of Experience (QoE) using a crowdsourcing approach. Lastly, based on a large dataset including dominant network and encoding conditions, the evaluation method is investigated using structural equation modeling. The conveyed understanding of gaming QoE, empirical findings, and models presented in this book should be of particular interest to researchers working in the fields of quality and usability engineering, as well as service providers and network operators.

Multimedia Streaming in SDN/NFV and 5G Networks - Alcardo Barakabitze 2022-12-20

Multimedia Streaming in SDN/NFV and 5G Networks A comprehensive overview of Quality of Experience control and management of multimedia services in future networks In Multimedia Streaming in SDN/NFV and 5G Networks, renowned researchers deliver a high-level exploration of Quality of Experience (QoE) control and management solutions for multimedia services in future softwarized and virtualized 5G networks. The book offers coverage of network softwarization and virtualization technologies, including SDN, NFV, MEC, and Fog/Cloud Computing, as critical elements for the management of multimedia services in future networks, like 5G and 6G networks and beyond. Providing a fulsome examination of end-to-end QoE control and management solutions in softwarized and virtualized networks, the book concludes with discussions of probable future challenges and research directions in emerging multimedia services and applications, 5G network management and orchestration, network slicing and collaborative service management of multimedia services in softwarized networks, and QoE-oriented business models. The distinguished authors also explore: Thorough introductions to 5G networks, including definitions and requirements, as well as Quality of Experience management of multimedia streaming services Comprehensive explorations of multimedia streaming services over the internet and network softwarization and virtualization in future networks Practical discussions of QoE management using SDN and NFV in future networks, as well as QoE management of multimedia services in emerging architectures, including MEC, ICN, and Fog/Cloud Computing In-depth examinations of QoE in emerging applications, 5G network slicing architectures and implementations, and 5G network slicing orchestration and resource management Perfect for researchers and engineers in multimedia services and telecoms, Multimedia Streaming in SDN/NFV and 5G Networks will also earn a place in the libraries of graduate and senior undergraduate students with interests in computer science,

communication engineering, and telecommunication systems.

Advanced Concepts of Strength & Conditioning for Tennis - Philipp Halfmann 2012-10-21
Philipp Halfmann wrote THE book about strength and conditioning training for tennis you have been waiting for. Based on his own experiences as a competitive tennis player and a successful conditioning coach and backed by scientific research studies conducted during the Master's degree program in Exercise & Sport Science at FIU, this book is the must read lecture for anybody serious about competing on the competitive collegiate or professional tennis circuit. This book is designed for the purpose of teaching and applying and organized in sensible, constructive order. Each chapter first provides explanation of underlying scientific principles and then presents practical solutions in form of applications or exercises and training recommendations. For coaches „Advanced Concepts of Strength & Conditioning for Tennis" provides a comprehensive and cohesive body of knowledge and over 400 applications that can be utilized to develop all aspects of athletic conditioning for all skill levels, from recreational players to college athletes to professional player, in a safe and professional environment. For players the book offers everything they need to know with respect to stretching, resistance training, ballistics, plyometrics, speed, agility, quickness training as well as nutritional strategies necessary to lay the foundation for a successful career. For parents, it is a valuable resource in making informed decision when planning a successful career for their children. Whether you need to pick coaches, design conditioning programs on your own, or make prudent decision with regards to proper nutrition, this book provides the answers for you.

Design of Video Quality Metrics with Multi-Way Data Analysis - Christian Keimel 2015-12-29
This book proposes a data-driven methodology using multi-way data analysis for the design of video-quality metrics. It also enables video-quality metrics to be created using arbitrary features. This data- driven design approach not only requires no detailed knowledge of the human visual system, but also allows a proper consideration of the temporal nature of video using a three-way prediction model, corresponding to the three-way structure of video. Using two simple example metrics, the author demonstrates not only that this purely data- driven approach outperforms state-of-the-art video-quality metrics, which are often optimized for specific properties of the human visual system, but also that multi-way data analysis methods outperform the combination of two-way data analysis methods and temporal pooling.

Cross-Cultural Design - Pei-Luen Patrick Rau 2017-06-28
This book constitutes the proceedings of the 9th International Conference on Cross-Cultural Design, CCD 2017, held as part of the 19th International Conference on Human-Computer Interaction, HCII 2017, held in Vancouver, Canada, in July 2017. HCII 2017 received a total of 4340 submissions, of which 1228 papers were accepted for publication after a careful reviewing process. The papers thoroughly cover the entire field of Human-Computer Interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas. The 60 papers presented in the CCD 2017 proceedings are organized in topical sections: cultural foundations of design; cross-cultural product and service design; cross-cultural communication; design for social development; cross-cultural design for learning.

Sensory Evaluation of Sound - Nick Zacharov 2018-12-07
Sensory Evaluation of Sound provides a detailed review of the latest sensory evaluation techniques, specifically applied to the evaluation of sound and audio. This three-part book commences with an introduction to the fundamental role of sound and hearing, which is followed by an overview of sensory evaluation methods and associated univariate and multivariate statistical analysis techniques. The final part of the book provides several chapters with concrete real-world applications of sensory evaluation ranging from telecommunications, hearing aids design and binaural sound, via the latest research in concert hall acoustics through to audio-visual interaction. Aimed at the engineer, researcher, university student or manager the book gives insight into the advanced methods for the sensory evaluation with many application examples. Introduces the fundamental of hearing and the value of sound

Provides a firm theoretical basis for advanced techniques in sensory evaluation of sound that are then illustrated with concrete examples from university research through to industrial product development Includes chapters on sensory evaluation practices and methods as well as univariate and multivariate statistical analysis Six application chapters covering a wide range of concrete sensory evaluation study examples including insight into audio-visual assessment Includes data analysis with several associated downloadable datasets Provides extensive references to the existing research literature, text books and standards

Control, Computer Engineering and Neuroscience - Szczepan Paszkiel 2021-03-29
This book presents the proceedings of the 4th International Scientific Conference IC BCI 2021 Opole, Poland. The event was held at Opole University of Technology in Poland on 21 September 2021. Since 2014, the conference has taken place every two years at the University's Faculty of Electrical Engineering, Automatic Control and Informatics. The conference focused on the issues relating to new trends in modern brain–computer interfaces (BCI) and control engineering, including neurobiology–neurosurgery, cognitive science–bioethics, biophysics–biochemistry, modeling–neuroinformatics, BCI technology, biomedical engineering, control and robotics, computer engineering and neurorehabilitation–biofeedback.

Recent Trends in Data Science and Soft Computing - Faisal Saeed 2018-09-08
This book presents the proceedings of the 3rd International Conference of Reliable Information and Communication Technology 2018 (IRICT 2018), which was held in Kuala Lumpur, Malaysia, on July 23–24, 2018. The main theme of the conference was "Data Science, AI and IoT Trends for the Fourth Industrial Revolution." A total of 158 papers were submitted to the conference, of which 103 were accepted and considered for publication in this book. Several hot research topics are covered, including Advances in Data Science and Big Data Analytics, Artificial Intelligence and Soft Computing, Business Intelligence, Internet of Things (IoT) Technologies and Applications, Intelligent Communication

Systems, Advances in Computer Vision, Health Informatics, Reliable Cloud Computing Environments, Recent Trends in Knowledge Management, Security Issues in the Cyber World, and Advances in Information Systems Research, Theories and Methods.

Embedded System Design - Peter Marwedel 2017-07-26
A unique feature of this textbook is to provide a comprehensive introduction to the fundamental knowledge in embedded systems, with applications in cyber-physical systems and the Internet of things. It starts with an introduction to the field and a survey of specification models and languages for embedded and cyber-physical systems. It provides a brief overview of hardware devices used for such systems and presents the essentials of system software for embedded systems, including real-time operating systems. The author also discusses evaluation and validation techniques for embedded systems and provides an overview of techniques for mapping applications to execution platforms, including multi-core platforms. Embedded systems have to operate under tight constraints and, hence, the book also contains a selected set of optimization techniques, including software optimization techniques. The book closes with a brief survey on testing. This third edition has been updated and revised to reflect new trends and technologies, such as the importance of cyber-physical systems and the Internet of things, the evolution of single-core processors to multi-core processors, and the increased importance of energy efficiency and thermal issues.

Audiovisual Quality Assessment and Prediction for Videotelephony - Benjamin Belmudez 2014-12-27
The work presented in this book focuses on modeling audiovisual quality as perceived by the users of IP-based solutions for video communication like videotelephony. It also extends the current framework for the parametric prediction of audiovisual call quality. The book addresses several aspects related to the quality perception of entire video calls, namely, the quality estimation of the single audio and video modalities in an interactive context, the audiovisual quality integration of these modalities and the temporal pooling of short sample-based quality scores to account for the perceptual quality impact of time-varying

degradations.

Musical Haptics - Stefano Papetti 2018-05-02
This Open Access book offers an original interdisciplinary overview of the role of haptic feedback in musical interaction. Divided into two parts, part I examines the tactile aspects of music performance and perception, discussing how they affect user experience and performance in terms of usability, functionality and perceived quality of musical instruments. Part II presents engineering, computational, and design approaches and guidelines that have been applied to render and exploit haptic feedback in digital musical interfaces. Musical Haptics introduces an emerging field that brings together engineering, human-computer interaction, applied psychology, musical aesthetics, and music performance. The latter, defined as the complex system of sensory-motor interactions between musicians and their instruments, presents a well-defined framework in which to study basic psychophysical, perceptual, and biomechanical aspects of touch, all of which will inform the design of haptic musical interfaces. Tactile and proprioceptive cues enable embodied interaction and inform sophisticated control strategies that allow skilled musicians to achieve high performance and expressivity. The use of haptic feedback in digital musical interfaces is expected to enhance user experience and performance, improve accessibility for disabled persons, and provide an effective means for musical tuition and guidance.

Talker Quality in Human and Machine Interaction - Benjamin Weiss 2019-07-13
The book discusses subjective ratings of quality and preference of unknown voices and dialog partners – their likability, for example. Human natural and artificial voices are studied in passive listening and interactive scenarios. In this book, the background, state of research, and contributions to the assessment and prediction of talker quality that is constituted in voice perception and in dialog are presented. Starting from theories and empirical findings from human interaction, major results and approaches are transferred to the domain of human-computer interaction (HCI). The main objective of this book is to contribute to the evaluation of spoken interaction in humans and between humans and computers, and in particular to the quality subsequently attributed to the speaking system or person based on the listening and interactive experience. Provides a comprehensive overview of research in evaluation of speakers and dialog partners; Presents recent results on the relevance of a first passive and interactive impression; Includes human and HCI evaluation results from a communicative perspective.

Emotional Feedback for Mobile Devices - Julia Seebode 2015-03-30
This book investigates the functional adequacy as well as the affective impression made by feedback messages on mobile devices. It presents an easily adoptable experimental setup to examine context effects on various feedback messages and applies it to auditory, tactile and auditory-tactile feedback messages. This approach provides insights into the relationship between the affective impression and functional applicability of these messages as well as an understanding of the influence of unimodal components on the perception of multimodal feedback messages. The developed paradigm can also be extended to investigate other aspects of context and used to investigate feedback messages in modalities other than those presented. The book uses questionnaires implemented on a Smartphone, which can easily be adopted for field studies to broaden the scope even wider. Finally, the book offers guidelines for the design of system feedback.

Augmented Reality and Virtual Reality - M. Claudia tom Dieck 2021-05-04
This book features the latest research in the area of immersive technologies, presented at the 6th International Augmented Reality and Virtual Reality Conference, held in online in 2020. Bridging the gap between academia and industry, it presents the state of the art in augmented reality (AR) and virtual reality (VR) technologies and their applications in various industries such as marketing, education, health care, tourism, events, fashion, entertainment, retail and the gaming industry. The book is a collection of research papers by prominent AR and VR scholars from around the globe. Covering the most significant

topics in the field of augmented and virtual reality and providing the latest findings, it is of interest to academics and practitioners alike.

Sonic Interactions in Virtual Environments - Michele Geronazzo 2023 This open access book tackles the design of 3D spatial interactions in an audio-centered and audio-first perspective, providing the fundamental notions related to the creation and evaluation of immersive sonic experiences. The key elements that enhance the sensation of place in a virtual environment (VE) are: Immersive audio: the computational aspects of the acoustical-space properties of Virutal Reality (VR) technologies Sonic interaction: the human-computer interplay through auditory feedback in VE VR systems: naturally support multimodal integration, impacting different application domains Sonic Interactions in Virtual Environments will feature state-of-the-art research on real-time auralization, sonic interaction design in VR, quality of the experience in multimodal scenarios, and applications. Contributors and editors include interdisciplinary experts from the fields of computer science, engineering, acoustics, psychology, design, humanities, and beyond. Their mission is to shape an emerging new field of study at the intersection of sonic interaction design and immersive media, embracing an archipelago of existing research spread in different audio communities and to increase among the VR communities, researchers, and practitioners, the awareness of the importance of sonic elements when designing immersive environments.

Connected Media in the Future Internet Era - Ahmet Kondoz 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.

Advanced Technologies, Systems, and Applications V - Samir Avdaković 2020-11-04 This book gathers papers that are centered on the theory and practice of a wide variety of advanced technologies. They cover the latest developments in computing, networking, information technology, robotics, complex systems, communications, energy, mechanical engineering, civil engineering, geodesy, and other subjects. These papers were selected for presentation at the 12th annual conference Days of the Bosnian-Herzegovinian American Academy of Arts and Sciences (BHAAAS), which was scheduled to be held in Mostar, Bosnia and Herzegovina in June 2020 but was postponed due to the coronavirus pandemic. However, in light of the high quality of the submissions, BHAAAS' technical and natural sciences division decided to create this special book despite the postponement. The editors would like to extend their special thanks to all the chairs of the planned symposia for their

dedicated work in the production of this book: Jasmin Kevrić, Zerina Mašetić, Dželila Mehanović (Computer Science); Anes Kazagić, Hajrudin Džafo, Izet Smajević (Mechanical Engineering); Tarik Uzunović, Asif Šabanović, Jasmin Kevrić (Mechatronics, Robotics and Embedded Systems); Mirza Šarić, Tarik Hubana, Maja Muftić Dedović (Advanced Electrical Power Systems); Mirza Pozder, Naida Ademović, Medžida Mulić (Civil Engineering and Geodesy); Adnan Mujezinović, Muris Torlak (Computer Modeling and Simulations for Engineering Applications); and Aljo Mujčić, Edin Mujčić (Information and Communication Technologies).

Quality of Experience - Sebastian Möller 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.

Virtual Reality and Augmented Reality - Patrick Bourdot 2020-10-26
This book constitutes the refereed proceedings of the 17th International Conference on Virtual Reality and Augmented Reality, EuroVR 2020, held in Valencia, Spain, in November 2020. The 12 full papers were carefully reviewed and selected from 35 submissions. The papers are organized in topical sections named: Perception, Cognition and Behaviour; Training, Teaching and Learning; Tracking and Rendering; and Scientific Posters.

Internet of Things, Infrastructures and Mobile Applications - Michael E. Auer 2020-09-10
This book gathers papers on interactive and collaborative mobile learning environments, assessment, evaluation and research methods in mobile learning, mobile learning models, theory and pedagogy, open and distance mobile learning, life-long and informal learning using mobile devices, wearables and the Internet of Things, game-based learning, dynamic learning experiences, mobile systems and services for opening up education, mobile healthcare and training, case studies on mobile

learning, and 5G network infrastructure. Today, interactive mobile technologies have become the core of many—if not all—fields of society. Not only do the younger generation of students expect a mobile working and learning environment, but also the new ideas, technologies and solutions introduced on a nearly daily basis also boost this trend. Discussing and assessing key trends in the mobile field were the primary aims of the 13th International Conference on Interactive Mobile Communication Technologies and Learning (IMCL2019), which was held in Thessaloniki, Greece, from 31 October to 01 November 2019. Since being founded in 2006, the conference has been devoted to new approaches in interactive mobile technologies, with a focus on learning. The IMCL conferences have since become a central forum of the exchange of new research results and relevant trends, as well as best practices. The book's intended readership includes policymakers, academics, educators, researchers in pedagogy and learning theory, schoolteachers, further education lecturers, practitioners in the learning industry, etc.

Advances in Usability, User Experience, Wearable and Assistive Technology - Tareq Ahram 2020-07-01
This book addresses emerging issues in usability, interface design, human–computer interaction, user experience and assistive technology. It highlights research aimed at understanding human interactions with products, services and systems and focuses on finding effective approaches for improving the user experience. It also discusses key issues in designing and providing assistive devices and services for individuals with disabilities or impairment, offering them support with mobility, communication, positioning, environmental control and daily living. The book covers modeling as well as innovative design concepts, with a special emphasis on user-centered design, and design for specific populations, particularly the elderly. Further topics include virtual reality, digital environments, gaming, heuristic evaluation and forms of device interface feedback (e.g. visual and haptic). Based on the AHFE 2020 Virtual Conference on Usability and User Experience, the AHFE 2020 Virtual Conference on Human Factors and Assistive Technology,

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the AHFE Virtual Conference on Human Factors and Wearable Technologies, and the AHFE 2020 Virtual Conference on Virtual Environments and Game Design, held on July 16–20, 2020, it provides academics and professionals with an extensive source of information and a timely guide to tools, applications and future challenges in these fields.

Motivation of Workers on Microtask Crowdsourcing Platforms - Babak Naderi 2018-01-24

This book studies the motivation of crowdworkers to find out how to attract more people and reach a higher quality of outcomes. The book first proposes a taxonomy for studying the motivation of crowdworkers, including the potential influencing factors, different types of motivation, and possible consequences and outcomes related to the motivation. Next, the CWMS questionnaire, an instrument for measuring the underlying motivation of crowdworkers is developed. It considers different dimensions of motivation suggested by the Self-Determination Theory of motivation which is a well-established and empirically validated psychological theory used in various domains. This instrument can be used to study the effect of platform and user characteristics on the general motivation of crowdworkers. Later, the task-specific motivation of crowdworkers is studied in detail: Influencing factors are investigated, subjective methods for measuring them are evaluated, a model for predicting worker's decision on taking a task is proposed, the relative importance of different factors for two populations of crowdworkers is studied, and finally, a model for predicting the expected workload (as one of the major influencing factors) given the task design is proposed.

Innovative Capacity Allocations for All-IP Networks - Volker Stocker 2020-02-27

Das Internet-Ökosystem ist gekennzeichnet durch eine starke Dynamik und ausgeprägte Evolutorik. Während sich das Spektrum an Inhalten und Anwendungsdiensten, welche integriert über "General-Purpose"-Breitbandnetze bereitgestellt werden sollen, fortwährend wandelt, werden sowohl die Anforderungen an die Datenübermittlung als auch entsprechende Kapazitätsallokationsprobleme zunehmend komplexer. Die erwartete Rolle des Internets der Dinge, 5G oder Virtual-Reality-Anwendungen unterstreicht, wie wichtig es für Anbieter von breitbandigen Zugangsdiensten sein wird, diesen sich wandelnden Anforderungen in einer ökonomisch effizienten Weise gerecht werden zu können. Dieses Buch untersucht Evolution und den Wettbewerb im Internet-Ökosystem und führt eine netzökonomische Analyse effizienter Kapazitätsallokationen in All-IP-Netzen durch. In diesem Zusammenhang wird die Rolle von Netzneutralitätsregulierungen kritisch bewertet.