



Speech Quality Assessment And Evaluation

N. R. Shetty, L. M. Patnaik, N. H. Prasad



Speech Quality Assessment And Evaluation:

Voice and Speech Quality Perception Ute Jekosch, 2005-08-02 Foundations of Voice and Speech Quality Perception starts out with the fundamental question of How do listeners perceive voice and speech quality and how can these processes be modeled Any quantitative answers require measurements This is natural for physical quantities but harder to imagine for perceptual measurands This book approaches the problem by actually identifying major perceptual dimensions of voice and speech quality perception defining units wherever possible and offering paradigms to position these dimensions into a structural skeleton of perceptual speech and voice quality The emphasis is placed on voice and speech quality assessment of systems in artificial scenarios Many scientific fields are involved This book bridges the gap between two quite diverse fields engineering and humanities and establishes the new research area of Voice and Speech Quality Perception **Integral and Diagnostic Intrusive Prediction of Speech Quality** Nicolas Côté, 2011-05-06 This work deals with the instrumental measurement methods for the perceived quality of transmitted speech These measures simulate the speech perception process employed by human subjects during auditory experiments The measure standardized by the International Telecommunication Union ITU called Wideband Perceptual Speech Quality Evaluation WB PESQ is not able to quantify all these perceived characteristics on a unidimensional quality scale the Mean Opinion Score MOS scale Recent experimental studies showed that subjects make use of several perceptual dimensions to judge about the quality of speech signals In order to represent the signal at a higher stage of perception a new model called Diagnostic Instrumental Assessment of Listening quality DIAL has been developed It includes a perceptual and a cognitive model which simulate the whole quality judgment process Except for strong discontinuities DIAL predicts very well speech quality of different speech processing and transmission systems and it outperforms the WB PESQ **Speech Enhancement** Philipos C. Loizou, 2013-02-25 With the proliferation of mobile devices and hearing devices including hearing aids and cochlear implants there is a growing and pressing need to design algorithms that can improve speech intelligibility without sacrificing quality Responding to this need Speech Enhancement Theory and Practice Second Edition introduces readers to the basic pr **Dimension-based Quality Modeling of Transmitted Speech** Marcel Wältermann, 2013-01-03 In this book speech transmission quality is modeled on the basis of perceptual dimensions The author identifies those dimensions that are relevant for today's public switched and packet based telecommunication systems regarding the complete transmission path from the mouth of the speaker to the ear of the listener Both narrowband 300 3400 Hz as well as wideband 50 7000 Hz speech transmission is taken into account A new analytical assessment method is presented that allows the dimensions to be rated by non expert listeners in a direct way Due to the efficiency of the test method a relatively large number of stimuli can be assessed in auditory tests The test method is applied in two auditory experiments The book gives the evidence that this test method provides meaningful and reliable results The resulting dimension scores together with respective overall quality ratings form the basis for a new parametric

model for the quality estimation of transmitted speech based on the perceptual dimensions In a two step model approach instrumental dimension models estimate dimension impairment factors in a first step The resulting dimension estimates are combined by a Euclidean integration function in a second step in order to provide an estimate of the total impairment

Evaluation of Text and Speech Systems Laila Dybkjær, Holmer Hemsén, Wolfgang Minker, 2007-05-07 In its nine chapters this book provides an overview of the state of the art and best practice in several sub fields of evaluation of text and speech systems and components The evaluation aspects covered include speech and speaker recognition speech synthesis animated talking agents part of speech tagging parsing and natural language software like machine translation information retrieval question answering spoken dialogue systems data resources and annotation schemes With its broad coverage and original contributions this book is unique in the field of evaluation of speech and language technology This book is of particular relevance to advanced undergraduate students PhD students academic and industrial researchers and practitioners

Springer Handbook of Speech Processing Jacob Benesty, M. M. Sondhi, Yiteng Huang, 2007-11-22 This handbook plays a fundamental role in sustainable progress in speech research and development With an accessible format and with accompanying DVD Rom it targets three categories of readers graduate students professors and active researchers in academia and engineers in industry who need to understand or implement some specific algorithms for their speech related products It is a superb source of application oriented authoritative and comprehensive information about these technologies this work combines the established knowledge derived from research in such fast evolving disciplines as Signal Processing and Communications Acoustics Computer Science and Linguistics **Academic Press Library in Signal Processing**

, 2013-09-14 This fourth volume edited and authored by world leading experts gives a review of the principles methods and techniques of important and emerging research topics and technologies in Image Video Processing and Analysis Hardware Audio Acoustic and Speech Processing With this reference source you will Quickly grasp a new area of research Understand the underlying principles of a topic and its application Ascertain how a topic relates to other areas and learn of the research issues yet to be resolved Quick tutorial reviews of important and emerging topics of research in Image Video Processing and Analysis Hardware Audio Acoustic and Speech Processing Presents core principles and shows their application Reference content on core principles technologies algorithms and applications Comprehensive references to journal articles and other literature on which to build further more specific and detailed knowledge Edited by leading people in the field who through their reputation have been able to commission experts to write on a particular topic **Speech and Audio Processing in**

Adverse Environments Eberhard Hänsler, Gerhard Schmidt, 2008-07-22 Users of signal processing systems are never satisfied with the system they currently use They are constantly asking for higher quality faster performance more comfort and lower prices Researchers and developers should be appreciative for this attitude It justifies their constant effort for improved systems Better knowledge about biological and physical interrelations coming along with more powerful technologies are their

engines on the endless road to perfect systems This book is an impressive image of this process After Acoustic Echo 1 and Noise Control published in 2004 many new results lead to Topics in 2 Acoustic Echo and Noise Control edited in 2006 Today in 2008 even more new findings and systems could be collected in this book Comparing the contributions in both edited volumes progress in knowledge and technology becomes clearly visible Blind methods and multi-input systems replace the low complexity systems The functionality of new systems is less and less limited by the processing power available under economic constraints The editors have to thank all the authors for their contributions They cooperated readily in our effort to unify the layout of the chapters the terminology and the symbols used It was a pleasure to work with all of them Furthermore it is the editors concern to thank Christoph Baumann and the Springer Publishing Company for the encouragement and help in publishing this book

Communication Acoustics Ville Pulkki, Matti Karjalainen, 2015-04-30 In communication acoustics the communication channel consists of a sound source a channel acoustic and or electric and finally the receiver the human auditory system a complex and intricate system that shapes the way sound is heard Thus when developing techniques in communication acoustics such as in speech audio and aided hearing it is important to understand the time frequency space resolution of hearing This book facilitates the reader's understanding and development of speech and audio techniques based on our knowledge of the auditory perceptual mechanisms by introducing the physical signal processing and psychophysical background to communication acoustics It then provides a detailed explanation of sound technologies where a human listener is involved including audio and speech techniques sound quality measurement hearing aids and audiology Key features Explains perceptually based audio the authors take a detailed but accessible engineering perspective on sound and hearing with a focus on the human place in the audio communications signal chain from psychoacoustics and audiology to optimizing digital signal processing for human listening Presents a wide overview of speech from the human production of speech sounds and basics of phonetics to major speech technologies recognition and synthesis of speech and methods for speech quality evaluation Includes MATLAB examples that serve as an excellent basis for the reader's own investigations into communication acoustics interaction schemes which intuitively combine touch vision and voice for lifelike interactions

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 **Signals and Images** Rosângela Fernandes Coelho,Vitor Heloiz Nascimento,Ricardo Lopes de Queiroz,João Marcos Travassos Romano,Charles Casimiro Cavalcante,2018-09-03 Signals and Images Advances and Results in Speech Estimation Compression Recognition Filtering and Processing cohesively combines contributions from field experts to deliver a comprehensive account of the latest developments in signal processing These experts detail the results of their research related to audio and speech enhancement acoustic image estimation video compression biometric recognition hyperspectral image analysis tensor decomposition with applications in communications adaptive sparse interpolated filtering signal processing for power line communications bio inspired signal processing seismic data processing arithmetic transforms for spectrum computation particle filtering in cooperative networks three dimensional television and more This book not only shows how signal processing theory is applied in current and emerging technologies but also demonstrates how to tackle key problems such as how to enhance speech in the time domain improve audio quality and meet the desired electrical consumption target for controlling carbon emissions Signals and Images Advances and Results in Speech Estimation Compression Recognition Filtering and Processing serves as a guide to the next generation of signal processing solutions for speech and video coding hearing aid devices big data processing smartphones smart digital communications acoustic sensors and beyond **Advances in Digital Speech Transmission** Prof Rainer Martin,Prof Ulrich Heute,Prof Christiane Antweiler,2008-02-28 Speech processing and speech transmission technology are expanding fields of active research New challenges arise from the anywhere anytime paradigm of mobile communications the ubiquitous use of voice communication systems in noisy environments and the convergence of communication networks toward Internet based transmission protocols such as Voice over IP As a consequence new speech coding new enhancement and error concealment and new quality assessment methods are emerging Advances in Digital Speech Transmission provides an up to date overview of the field including topics such as speech coding in heterogeneous communication networks wideband coding and the quality assessment of wideband speech Provides an insight into the latest developments in speech processing and speech transmission making it an essential reference to those working in these fields Offers a balanced overview of technology and applications Discusses topics such as speech coding in heterogeneous communications networks wideband coding and the quality assessment of the wideband speech Explains speech signal processing in hearing instruments and man machine interfaces from applications point of view Covers speech coding for Voice over IP blind source separation digital hearing aids and speech processing for automatic speech recognition Advances in Digital Speech Transmission serves as an essential link between the basics and the type of technology and applications prospective engineers work on in industry labs and academia The book will also be of interest to advanced students researchers and other professionals who need to brush up their knowledge in this field **IMS Multimedia Telephony over Cellular Systems** Shyam Chakraborty,Janne Peisa,Tomas Frankkila,Per Synnergren,2007-02-06 IMS Multimedia Telephony service

has been standardized in 3GPP as the replacement of the circuit switched telephony service in cellular networks The multimedia telephony service consists of several service components such as voice video and text IMS Multimedia Telephony over Cellular Systems provides a comprehensive overview of the service that will enable enriched telephony for mobile users Enriched telephony fulfils the user s desire to communicate in new ways for example by sharing pictures and video clips In addition to an overview of the Multimedia Telephony service the book focuses on the modern media processing methods which allows the quality of the packet switched voice and video telephony not only to match but also possibly exceed the quality of circuit switched telephony Such key components as adaptive jitter buffering and adaptation of conversational media are explained in detail Key features Detailed description of how Multimedia Telephony sessions are set up and controlled Analysis showing the capacity and quality of VoIP and Multimedia Telephony in cellular networks Coverage of other IMS services such as PoC specified by 3GPP and OMA Description of suitable QoS and radio bearers for Multimedia Telephony Explanation of the modern radio interface especially High Speed Packet Access which is based on concepts such as link adaptation and fast hybrid ARQ The possibilities for the current and future standards covered in this book make it an indispensable resource for engineers designers and researchers in VoIP telecommunication companies and universities teaching and conducting research in telecommunications It will also be of interest to managers needing an in depth knowledge of the engineering and key issues of this complex technology and students aspiring to develop a career in this area

Human and Automatic Speaker Recognition over Telecommunication Channels Laura Fernández Gallardo, 2015-08-17 This work addresses the evaluation of the human and the automatic speaker recognition performances under different channel distortions caused by bandwidth limitation codecs and electro acoustic user interfaces among other impairments Its main contribution is the demonstration of the benefits of communication channels of extended bandwidth together with an insight into how speaker specific characteristics of speech are preserved through different transmissions It provides sufficient motivation for considering speaker recognition as a criterion for the migration from narrowband to enhanced bandwidths such as wideband and super wideband *AETA 2013: Recent Advances in Electrical Engineering and Related Sciences* Ivan Zelinka, Vo Hoang Duy, Jaesang Cha, 2013-11-01 Over the past decades fault diagnosis FDI and fault tolerant control strategies FTC have been proposed based on different techniques for linear and nonlinear systems Indeed a considerable attention is deployed in order to cope with diverse damages resulting in faults occurrence Quality of Telephone-Based Spoken Dialogue Systems Sebastian Möller, 2005-12-28 Quality of Telephone Based Spoken Dialogue Systems is a systematic overview of assessment evaluation and prediction methods for the quality of services such as travel and touristic information phone directory and messaging or telephone banking services A new taxonomy of quality of service is presented which serves as a tool for classifying assessment and evaluation methods for planning and interpreting evaluation experiments and for estimating quality A broad overview of parameters and evaluation methods is given both on a

system component level and for a fully integrated system Three experimental investigations illustrate the relationships between system characteristics and perceived quality The resulting information is needed in all phases of system specification design implementation and operation Although *Quality of Telephone Based Spoken Dialogue Systems* is written from the perspective of an engineer in telecommunications it is an invaluable source of information for professionals in signal processing communication acoustics computational linguistics speech and language sciences human factor design and ergonomics

Neural Correlates of Quality Perception for Complex Speech Signals Jan-Niklas Antons, 2015-02-11 This book interconnects two essential disciplines to study the perception of speech Neuroscience and Quality of Experience which to date have rarely been used together for the purposes of research on speech quality perception In five key experiments the book demonstrates the application of standard clinical methods in neurophysiology on the one hand and of methods used in fields of research concerned with speech quality perception on the other Using this combination the book shows that speech stimuli with different lengths and different quality impairments are accompanied by physiological reactions related to quality variations e g a positive peak in an event related potential Furthermore it demonstrates that in most cases quality impairment intensity has an impact on the intensity of physiological reactions

Verbal and Nonverbal Features of Human-Human and Human-Machine Interaction Anna Esposito, Nikolaos Bourbakis, Nikolaos Avouris, Ioannis Hatzilygeroudis, 2008-12-17 This book is dedicated to the dreamers their dreams and their perseverance in research work This volume brings together the selected and peer reviewed contributions of the participants at the COST 2102 International Conference on Verbal and Nonverbal Features of Human Human and Human Machine Interaction held in Patras Greece October 29 31 2007 hosted by the 19th IEEE International Conference on Tools with Artificial Intelligence ICTAI 2008 The conference was sponsored by COST European Cooperation in the Field of Scientific and Technical Research www.cost-esf.org in the domain of Information and Communication Technologies ICT for disseminating the advances of the search activity developed within COST Action 2102 Cross Modal Analysis of Verbal and Nonverbal Communication www.cost2102.eu COST Action 2102 is a network of about 60 European and 6 overseas laboratories whose aim is to develop an advanced acoustical perceptual and psychological analysis of verbal and non verbal communication signals originating in spontaneous face to face interaction in order to identify algorithms and automatic procedures capable of identifying the human emotional states Particular care is devoted to the recognition of emotional states gestures speech and facial expressions in anticipation of the implementation of intelligent avatars and interactive dialogue systems that could be exploited to improve user access to future telecommunication services see COST 2102 Memorandum of Understanding MoU www.cost2102.eu

Advanced Network Technologies and Intelligent Computing Anshul Verma, Pradeepika Verma, Kiran Kumar Pattanaik, Sanjay Kumar Dhurandher, Isaac Woungang, 2024-08-07 The 4 volume proceedings set CCIS 2090 2091 2092 and 2093 constitute the refereed post conference proceedings of the Third International Conference on Advanced Network Technologies and

Intelligent Computing ANTIC 2023 held in Varanasi India during December 20 22 2023 The 87 full papers and 11 short papers included in this book were carefully reviewed and selected from 487 submissions The conference papers are organized in topical sections on Part I Advanced Network Technologies Part II Advanced Network Technologies Intelligent Computing Part III IV Intelligent Computing Emerging Research in Computing, Information, Communication and Applications N. R. Shetty, L. M. Patnaik, N. H. Prasad, 2022-12-12 This book presents the proceedings of the International Conference on Emerging Research in Computing Information Communication and Applications ERCICA 2022 The conference provides an interdisciplinary forum for researchers professional engineers and scientists educators and technologists to discuss debate and promote research and technology in the upcoming areas of computing information communication and their applications The book discusses these emerging research areas providing a valuable resource for researchers and practicing engineers alike

Reviewing **Speech Quality Abebment And Evaluation**: Unlocking the Spellbinding Force of Linguistics

In a fast-paced world fueled by information and interconnectivity, the spellbinding force of linguistics has acquired newfound prominence. Its capacity to evoke emotions, stimulate contemplation, and stimulate metamorphosis is truly astonishing. Within the pages of "**Speech Quality Abebment And Evaluation**," an enthralling opus penned by a highly acclaimed wordsmith, readers embark on an immersive expedition to unravel the intricate significance of language and its indelible imprint on our lives. Throughout this assessment, we shall delve to the book is central motifs, appraise its distinctive narrative style, and gauge its overarching influence on the minds of its readers.

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