

Automatic Speech Recognition On Mobile Devices And Over Communication Networks Advances In Computer Vision And Pattern Recognition

As recognized, adventure as skillfully as experience nearly lesson, amusement, as without difficulty as concord can be gotten by just checking out a ebook Automatic Speech Recognition On Mobile Devices And Over Communication Networks Advances In Computer Vision And Pattern Recognition in addition to it is not directly done, you could recognize even more not far off from this life, in this area the world.

We find the money for you this proper as capably as simple artifice to acquire those all. We find the money for Automatic Speech Recognition On Mobile Devices And Over Communication Networks Advances In Computer Vision And Pattern Recognition and numerous ebook collections from fictions to scientific research in any way. accompanied by them is this Automatic Speech Recognition On Mobile Devices And Over Communication Networks Advances In Computer Vision And Pattern Recognition that can be your partner.



Human Factors and Voice Interactive Systems John Wiley & Sons

This book focuses on speech processing in the presence of low-bit rate coding and varying background environments. The methods presented in the book exploit the speech events which are robust in noisy environments. Accurate estimation of these crucial events will be useful for carrying out various speech tasks such as speech recognition, speaker recognition and speech rate modification in mobile environments. The authors provide insights into designing and developing robust methods to process the speech in mobile environments. Covering temporal and spectral enhancement methods to minimize the effect of noise and examining methods and models on speech and speaker recognition applications in mobile environments.

Robust Speech Recognition of Uncertain or Missing Data Springer

This book discusses large margin and kernel methods for speech and speaker recognition Speech and Speaker Recognition: Large Margin and Kernel Methods is a collation of research in the recent advances in large margin and kernel methods, as applied to the field of speech and speaker recognition. It presents theoretical and practical foundations of these methods, from support vector machines to large margin methods for structured learning. It also provides examples of large margin based acoustic modelling for continuous speech recognizers, where the grounds for practical large margin sequence learning are set. Large margin methods for discriminative language modelling and text independent speaker verification are also addressed in this book. Key Features: Provides an up-to-date snapshot of the current state of research in this field Covers important aspects of extending the binary support vector machine to speech and speaker recognition applications Discusses large margin and kernel method algorithms for sequence prediction required for acoustic modeling Reviews past and present work on discriminative training of language models, and describes different large margin algorithms for the application of part-of-speech tagging Surveys recent work on the use of kernel approaches to text-independent speaker verification, and introduces the main concepts and algorithms Surveys recent work on kernel approaches to learning a similarity matrix from data This book will be of interest to researchers, practitioners, engineers, and scientists in speech processing and machine learning fields.

Speech in Mobile and Pervasive Environments BoD – Books on Demand

The need for automatic speech recognition systems to be robust with respect to changes in their acoustical environment has become more widely appreciated in recent years, as more systems are finding their way into practical applications. Although the issue of environmental robustness has received only a small fraction of the attention devoted to speaker independence, even speech recognition systems that are designed to be speaker independent frequently perform very poorly when they are tested using a different type of microphone or acoustical environment from the one with which they were trained. The use of microphones other than a "close talking" headset also tends to severely degrade speech recognition -performance. Even in relatively quiet office environments, speech is degraded by additive noise from fans, slamming doors, and other conversations, as well as by the effects of unknown linear filtering arising reverberation from surface reflections in a room, or spectral shaping by microphones or the vocal tracts of individual speakers. Speech-recognition systems designed for long-distance telephone lines, or applications deployed in more adverse acoustical environments such as motor vehicles, factory floors, or outdoors demand far greaterdegrees ofenvironmental robustness. There are several different ways of building acoustical robustness into speech recognition systems. Arrays of microphones can be used to develop a directionally-sensitive system that resists inteference from competing talkers and other noise sources that are spatially separated from the source of the desired speech signal.

The Art and Business of Speech Recognition Springer Science & Business Media

Speech recognition technology is being increasingly employed in human-machine interfaces. A remaining problem however is the robustness of this technology to non-native accents, which still cause considerable difficulties for current systems. In this book, methods to overcome this problem are described. A speaker adaptation algorithm that is capable of adapting to the current speaker with just a few words of speaker-specific data based on the MLLR principle is developed and combined with confidence measures that focus on phone durations as well as on acoustic features. Furthermore, a specific pronunciation modelling technique that allows the automatic derivation of non-native pronunciations without using non-native data is described and combined with the previous techniques to produce a robust adaptation to non-native accents in an automatic speech recognition system.

Automatic Speech Recognition on Mobile Devices and over Communication Networks Springer Science & Business Media
Speech Processing, Recognition and Artificial Neural Networks contains papers from leading researchers and selected students, discussing the experiments, theories and perspectives of acoustic phonetics as well as the latest techniques in the field of spe ech science and technology. Topics covered in this book include; Fundamentals of Speech Analysis and Perceptron; Speech Processing; Stochastic Models for Speech; Auditory and Neural Network Models for Speech; Task-Oriented Applications of Automatic Speech

Recognition and Synthesis.

Mobile Multimedia Processing Springer

The advances in computing and networking have sparked an enormous interest in deploying automatic speech recognition on mobile devices and over communication networks. This book brings together academic researchers and industrial practitioners to address the issues in this emerging realm and presents the reader with a comprehensive introduction to the subject of speech recognition in devices and networks. It covers network, distributed and embedded speech recognition systems.

Designing Voice User Interfaces John Wiley & Sons

Robust Automatic Speech Recognition: A Bridge to Practical Applications establishes a solid foundation for automatic speech recognition that is robust against acoustic environmental distortion. It provides a thorough overview of classical and modern noise-and reverberation robust techniques that have been developed over the past thirty years, with an emphasis on practical methods that have been proven to be successful and which are likely to be further developed for future applications. The strengths and weaknesses of robustness-enhancing speech recognition techniques are carefully analyzed. The book covers noise-robust techniques designed for acoustic models which are based on both Gaussian mixture models and deep neural networks. In addition, a guide to selecting the best methods for practical applications is provided. The reader will: Gain a unified, deep and systematic understanding of the state-of-the-art technologies for robust speech recognition Learn the links and relationship between alternative technologies for robust speech recognition Be able to use the technology analysis and categorization detailed in the book to guide future technology development Be able to develop new noise-robust methods in the current era of deep learning for acoustic modeling in speech recognition The first book that provides a comprehensive review on noise and reverberation robust speech recognition methods in the era of deep neural networks Connects robust speech recognition techniques to machine learning paradigms with rigorous mathematical treatment Provides elegant and structural ways to categorize and analyze noise-robust speech recognition techniques Written by leading researchers who have been actively working on the subject matter in both industrial and academic organizations for many years

Robust Automatic Speech Recognition Springer

Thirty speech experts cover computer recognition of spoken words, phrases, & sentences. Introduces the field, future prospects & reasons for voice input to machines. Gives guidelines for advanced work in sentence understanding.

Multilingual Phone Recognition in Indian Languages Springer Science & Business Media

This book provides a comprehensive overview of the recent advancement in the field of automatic speech recognition with a focus on deep learning models including deep neural networks and many of their variants. This is the first automatic speech recognition book dedicated to the deep learning approach. In addition to the rigorous mathematical treatment of the subject, the book also presents insights and theoretical foundation of a series of highly successful deep learning models.

Spoken Language Understanding Springer Science & Business Media

Two Top Industry Leaders Speak Out Judith Markowitz When Amy asked me to co-author the foreword to her new book on advances in speech recognition, I was honored. Amy's work has always been infused with c- ative intensity, so I knew the book would be as interesting for established speech professionals as for readers new to the speech-processing industry. The fact that I would be writing the foreward with Bill Scholz made the job even more enjoyable. Bill and I have known each other since he was at UNISYS directing projects that had a profound impact on speech-recognition tools and applications. Bill Scholz The opportunity to prepare this foreword with Judith provides me with a rare oppor- nity to collaborate with a seasoned speech professional to identify numerous signi- cant contributions to the field offered by the contributors whom Amy has recruited. Judith and I have had our eyes opened by the ideas and analyses offered by this collection of authors. Speech recognition no longer needs be relegated to the ca- gory of an experimental future technology; it is here today with sufficient capability to address the most challenging of tasks. And the point-click-type approach to GUI control is no longer sufficient, especially in the context of limitations of mode- day hand held devices. Instead, VUI and GUI are being integrated into unified multimodal solutions that are maturing into the fundamental paradigm for comput- human interaction in the future.

Advances in Speech Recognition Springer

Spoken language understanding (SLU) is an emerging field in between speech and language processing, investigating human/ machine and human/ human communication by leveraging technologies from signal processing, pattern recognition, machine learning and artificial intelligence. SLU systems are designed to extract the meaning from speech utterances and its applications are vast, from voice search in mobile devices to meeting summarization, attracting interest from both commercial and academic sectors. Both human/machine and human/human communications can benefit from the application of SLU, using differing tasks and approaches to better understand and utilize such communications. This book covers the state-of-the-art approaches for the most popular SLU tasks with chapters written by well-known researchers in the respective fields. Key features include: Presents a fully integrated view of the two distinct disciplines of speech processing and language processing for SLU tasks. Defines what is possible today for SLU as an enabling technology for enterprise (e.g., customer care centers or company meetings), and consumer (e.g., entertainment, mobile, car, robot, or smart environments) applications and outlines the key research areas. Provides a unique source of distilled information on methods for computer modeling of semantic information in human/machine and human/human conversations. This book can be successfully used for graduate courses in electronics engineering, computer science or computational linguistics. Moreover, technologists interested in processing spoken communications will find it a useful source of collated information of the topic drawn from the two distinct disciplines of speech processing and language processing under the new area of SLU.

Techniques for Noise Robustness in Automatic Speech Recognition Springer Science & Business Media

This volume is based on a workshop held on September 13, 2001 in New Orleans, LA, USA as part of the 24th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval. The title of the workshop was: "Information Retrieval Techniques for Speech Applications." Interest in speech applications dates back a number of decades. However, it is only in the last few years that automatic speech recognition has left the confines of the basic research lab and become a viable commercial application. Speech recognition technology has now matured to the point where speech can be used to interact with automated phone systems, control computer programs, and even create memos and documents. Moving beyond computer control and dictation, speech recognition has the potential to dramatically change the way we create, capture, and store knowledge. Advances in speech recognition technology combined with ever decreasing storage costs and processors that double in power every eighteen months have set the stage for a whole new era of applications that treat speech in the same way that we currently treat text. The goal of this workshop was to explore the technical issues involved in applying information retrieval and text analysis technologies in the new application domains enabled by automatic speech recognition. These possibilities bring with them a number of issues, questions, and problems. Speech-based user interfaces create different expectations for the end user, which in turn places demands on the back-end systems that must interact with the user and interpret the user's commands. Speech recognition will never be perfect, so analyses applied to the resulting transcripts must be robust in the face of recognition errors. The ability to capture speech and apply speech recognition on smaller, more powerful, pervasive devices suggests that text analysis and mining technologies can be applied in new domains never before considered.

Automatic Speech Recognition of Arabic Phonemes with Neural Networks Addison-Wesley Professional

This book covers language modeling and automatic speech recognition for inflective languages (e.g. Slavic languages), which represent roughly half of the languages spoken in Europe. These languages do not perform as well as English in speech recognition systems and it is therefore harder to develop an application with sufficient quality for the end user. The authors describe the most important language features for the development of a speech recognition system. This is then presented through the analysis of errors in the system and the development of language models and their inclusion in speech recognition systems, which specifically address the errors that are relevant for targeted applications. The error analysis is done with regard to morphological characteristics of the word in the recognized sentences. The book is oriented towards speech recognition with large vocabularies and continuous and even spontaneous speech. Today such applications work with a rather small number of languages compared to the number of spoken languages.

Acoustical and Environmental Robustness in Automatic Speech Recognition Springer Science & Business Media

Speech technology - the use of speech as a means of sending information to, and receiving information from computer systems has been in use as a research tool for many years. Only recently has it begun to move out of the laboratory and into commercially worthwhile applications, first with compressed and synthesised spoken messages, then with computer recognition of spoken messages, and today with diverse applications involving both recognition and reproduction of human speech. We have written this book because we believe the technology has now advanced to the point where many more applications of voice recognition and response are both feasible and economically attractive. Computers that can understand everyday speech are still a distant prospect, but provided the limitations of present day equipment are clearly understood there is much that can be achieved with it. Our aim is to show, in non-technical language, what is now possible with the help of speech technology. The text includes many examples of current applications in industry, commerce and other fields, and we have selected five current industrial applications combining speech recognition and response for more detailed attention. Industrial cases have been chosen both because we see industry as an important growth area for speech applications in the next few years, and because it presents some of the greatest difficulties in speech recognition - if you can make it work in industry, then you can make it work almost anywhere.

Automatic Speech and Speaker Recognition Springer Science & Business Media

Automatic speech recognition (ASR) systems are finding increasing use in everyday life. Many of the commonplace environments where the systems are used are noisy, for example users calling up a voice search system from a busy cafeteria or a street. This can result in degraded speech recordings and adversely affect the performance of speech recognition systems. As the use of ASR systems increases, knowledge of the state-of-the-art in techniques to deal with such problems becomes critical to system and application engineers and researchers who work with or on ASR technologies. This book presents a comprehensive survey of the state-of-the-art in techniques used to improve the robustness of speech recognition systems to these degrading external influences. Key features: Reviews all the main noise robust ASR approaches, including signal separation, voice activity detection, robust feature extraction, model compensation and adaptation, missing data techniques and recognition of reverberant speech. Acts as a timely exposition of the topic in light of more widespread use in the future of ASR technology in challenging environments. Addresses robustness issues and signal degradation which are both key requirements for practitioners of ASR. Includes contributions from top ASR researchers from leading research units in the field

Advances in Speech Recognition Springer Science & Business Media

New material treats such contemporary subjects as automatic speech recognition and speaker verification for banking by computer and privileged (medical, military, diplomatic) information and control access. The book also focuses on speech and audio compression for mobile communication and the Internet. The importance of subjective quality criteria is stressed. The book also contains introductions to human monaural and binaural hearing, and the basic concepts of signal analysis. Beyond speech processing, this revised and extended new edition of Computer Speech gives an overview of natural language technology and presents the nuts and bolts of state-of-the-art speech dialogue systems.

Progress in Nonlinear Speech Processing John Wiley & Sons

Automatic speech recognition (ASR) systems are finding increasing use in everyday life. Many of the commonplace environments where the systems are used are noisy, for example users calling up a voice search system from a busy cafeteria or a street. This can result in degraded speech recordings and adversely affect the performance of speech recognition systems. As the use of ASR systems increases, knowledge of the state-of-the-art in techniques to deal with such problems becomes critical to system and application engineers and researchers who work with or on ASR technologies. This book presents a comprehensive survey of the state-of-the-art in techniques used to improve the robustness of speech recognition systems to these degrading external influences. Key features: Reviews all the main noise robust ASR approaches, including signal separation, voice activity detection, robust feature extraction, model compensation and adaptation, missing data techniques and recognition of reverberant speech. Acts as a timely exposition of the topic in light of more widespread use in the future of ASR technology in

challenging environments. Addresses robustness issues and signal degradation which are both key requirements for practitioners of ASR. Includes contributions from top ASR researchers from leading research units in the field

Automatic Speech Recognition on Mobile Devices and over Communication Networks "O'Reilly Media, Inc."

Most people have experienced an automated speech-recognition system when calling a company. Instead of prompting callers to choose an option by entering numbers, the system asks questions and understands spoken responses. With a more advanced application, callers may feel as if they're having a conversation with another person. Not only will the system respond intelligently, its voice even has personality. The Art and Business of Speech Recognition examines both the rapid emergence and broad potential of speech-recognition applications. By explaining the nature, design, development, and use of such applications, this book addresses two particular needs: Business managers must understand the competitive advantage that speech-recognition applications provide: a more effective way to engage, serve, and retain customers over the phone. Application designers must know how to meet their most critical business goal: a satisfying customer experience. Author Blade Kotelly illuminates these needs from the perspective of an experienced, business-focused practitioner. Among the diverse applications he's worked on, perhaps his most influential design is the flight-information system developed for United Airlines, about which Julie Vallone wrote in Investor's Business Daily "By the end of the conversation, you might want to take the voice to dinner." If dinner is the analogy, this concise book is an ideal first course. Managers will learn the potential of speech-recognition applications to reduce costs, increase customer satisfaction, enhance the company brand, and even grow revenues. Designers, especially those just beginning to work in the voice domain, will learn user-interface design principles and techniques needed to develop and deploy successful applications. The examples in the book are real, the writing is accessible and lucid, and the solutions presented are attainable today. 0321154924B12242002

Techniques for Noise Robustness in Automatic Speech Recognition Springer Science & Business Media

The book presents current research and developments in multilingual speech recognition. The author presents a Multilingual Phone Recognition System (Multi-PRS), developed using a common multilingual phone-set derived from the International Phonetic Alphabets (IPA) based transcription of six Indian languages - Kannada, Telugu, Bengali, Odia, Urdu, and Assamese. The author shows how the performance of Multi-PRS can be improved using tandem features. The book compares Monolingual Phone Recognition Systems (Mono-PRS) versus Multi-PRS and baseline versus tandem system. Methods are proposed to predict Articulatory Features (AFs) from spectral features using Deep Neural Networks (DNN). Multitask learning is explored to improve the prediction accuracy of AFs. Then, the AFs are explored to improve the performance of Multi-PRS using lattice rescoring method of combination and tandem method of combination. The author goes on to develop and evaluate the Language Identification followed by Monolingual phone recognition (LID-Mono) and common multilingual phone-set based multilingual phone recognition systems.

Automatic Speech Recognition Morgan & Claypool Publishers

Voice user interfaces (VUIs) are becoming all the rage today. But how do you build one that people can actually converse with? Whether you're designing a mobile app, a toy, or a device such as a home assistant, this practical book guides you through basic VUI design principles, helps you choose the right speech recognition engine, and shows you how to measure your VUI's performance and improve upon it. Author Cathy Pearl also takes product managers, UX designers, and VUI designers into advanced design topics that will help make your VUI not just functional, but great. Understand key VUI design concepts, including command-and-control and conversational systems Decide if you should use an avatar or other visual representation with your VUI Explore speech recognition technology and its impact on your design Take your VUI above and beyond the basic exchange of information Learn practical ways to test your VUI application with users Monitor your app and learn how to quickly improve performance Get real-world examples of VUIs for home assistants, smartwatches, and car systems