

# Preface

During production of speech human beings impose emotional cues on the sequence of sound units to convey the intended message. Speech without emotional information is unnatural and monotonous. Most of the existing speech systems are able to process studio recorded neutral speech. However, in the present real world communication scenario, speech systems should have the ability to process the embedded emotions. Emotional clues present in the speech may be observed in various features extracted from excitation source, vocal tract system and prosodic components of speech.

This book attempts to discuss the methods to capture the emotion specific knowledge through excitation source, vocal tract and prosodic features extracted from speech. Various emotion recognition models are developed using auto-associative neural networks, support vector machines and Gaussian mixture models. Emotional speech database in an Indian language Telugu IITKGP-SESC (Indian Institute of Technology Kharagpur-Simulated Emotion Speech Corpus) and Berlin emotional speech database Emo-DB are used in this study for evaluating the emotion recognition performance.

This book is mainly intended for researchers working on emotion recognition from speech. This book is also useful for the young researchers, who want to pursue the research in speech processing using basic excitation source, vocal tract and prosodic features. Hence, this may be recommended as the text or reference book for the postgraduate level advanced speech processing course. The book has been organized as follows:

Chapter 1 introduces speech emotion recognition as an important research area. Psychological and engineering aspects of emotions and their manifestations in speech have been discussed. Chapter 2 provides the review of the literature on speech emotion recognition in view of various emotion-specific speech features, databases and models. This chapter also specify the scope and limitations of the present work. Chapter 3 presents various excitation source features for discriminating the emotions. Chapter 4, briefly discuss about the emotion discrimination capability of vocal tract system features. Chapter 5 discuss about the emotion-specific characteristics present in global and local prosodic features. Chapter 6

summarizes the contents of the book, highlights the contributions of the chapters and discusses the scope for future work.

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