Abstract

In this paper, through different experimental studies it is demonstrated that the time varying glottal excitation component of speech can be exploited for text independent gender recognition studies. Linear prediction (LP) residual is used as a representation of excitation information in speech. The gender-specific information in the excitation of voiced speech is
Glottal Excitation Feature based Gender Identification System using Ergodic HMM

captured using the Hidden Markov Models (HMMs). The decrease in the error during training and recognizing genders during testing phase close to 100 % accuracy demonstrates that the excitation component of speech contains gender-specific information and is indeed being effectively captured by continuous Ergodic HMM. A gender recognition study using gender specific features for different HMM states, mixture components, size of testing data on the performance of the gender recognition is evaluated. We demonstrate the gender recognition studies on TIMIT database.

Reference

- Alex Acero and Xuedong Huang, Speaker and Gender Normalization for Continuous-Density Hidden Markov Models, in Proc. of the Int. Conf. on Acoustics, Speech, and Signal, IEEE, May 1996

Index Terms

Computer Science        Signal Processing

Key words

Gender            Hidden Markov Model (HMM)
LPC
MFCC