

MFCC 和短时 TEO 能量的混合参数应用于说话人识别

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摘 要: 特征参数的提取在说话人识别中起至关重要的作用, 影响到整个系统的识别率。采用表征说话人语音特性的 Mel 倒谱系数和体现语音信号时域特征的短时 TEO 能量的混合特征参数应用到说话人识别系统中, 目的是通过增加表征说话人语音特征参数的维数, 来改善系统性能, 与传统提取方法相比, 该方法弥补了特征参数有效维数的不足, 最后建立 GMM-UBM 分类器模型, 对语音信号识别。实验证明, 该混合特征参数与 MFCC, 以及 MFCC 与其一阶差分的组合特征参数相比, 在没有增加运算复杂度的同时提高了系统的识别率。

关键词: 说话人识别; Mel 频率倒谱系数; Teager 能量算子; 混合特征参数; GMM-UBM

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Mixed Parameters of Mel Frequency Cepstral and Short-time TEO Energy in Speaker Recognition

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Abstract: The extracting of characteristic parameters play a vital role in speaker recognition that affecting the recognition performance of the entire speaker recognition system. Mel Frequency Cepstral (MFCC) that reflecting individual voice characteristics and short-time TEO energy that reflecting time-domain characteristics of the speech signal mixed feature parameters was adopted to apply to the speaker recognition system, compared with traditional feature extraction methods, this method increases the effective dimension of features to improve the shortage of the characteristics sample. Then, the speaker recognition is based on GMM-UBM classification model. Experiments show that the improved characteristic parameter compared to MFCC and MFCC+ Δ MFCC, without increasing the computational complexity and improving the system recognition rate.

Key words: speaker recognition; Mel frequency cepstral; Teager energy operator; mixed feature parameters; GMM-UBM

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