

论文

倒谱域特征分量置信度分析及说话人识别应用

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摘要:

缺失数据理论的置信度分析用于说话人识别时,使用的是滤波器组语音特征,虽然系统的鲁棒性可以提高,但整体的误识率依然很高。为了进一步降低系统的误识率,本文在滤波器组语音特征分量置信度的基础上,提出了一种用于计算倒谱域特征MFCC各维分量置信度的方法CBTM,该方法通过一个置信度变换矩阵,估算出经过Mel谱减法处理后的MFCC各维分量的置信度,在此基础上通过对GMM模型的方差加权来减少置信度小的特征分量对输出概率的影响,以此来提高系统的鲁棒性。在基于SUDA2002语料库的说话人辨认实验中,上述方法对NoiseX 92噪声库中的white、pink、factory1噪声表现出了比传统方法更低的误识率,说明了这种方法的有效性。

关键词: 说话人识别; 鲁棒性; 置信度; CBTM

Confidence analysis of cepstral feature and application to speaker recognition

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Abstract:

We used the filter bank as feature parameters when applied the confidence analysis to speaker recognition, it can improve the robustness, but the error rate was still very high. In order to further reduce the error rate of speaker recognition system, we proposed a new method called CBTM to get the confidence of each cepstral feature MFCC component based on the confidence of the filter bank. The CBTM evaluated the confidence of all MFCC components disposed by the Mel spectral subtraction through a confidence transform matrix, and reduced the impact of component with low confidence on the output probability by weighting the GMM variance to improve the robustness. The speaker identification experiments on Chinese speech corpus SUDA2002 show that the performance of the proposed method is better than traditional methods in the presence of white, pink, factory1 noise of NoiseX-92 database.

Keywords: Speaker Recognition; Robust; Confidence; CBTM

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- 说话人识别; 鲁棒性; 置信度; CBTM

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