

基于分形维数与 TEO 的语音端点检测算法

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摘 要: 为了改善短时 TEO 能量的抗噪性和分形检测自适应性, 提出了一种能适应多种噪声环境的端点检测算法. 该算法利用能表征能量分布的频域上的分形维数和 TEO 的消除零均值噪声、表征语音共振峰特性的特点, 在短时 TEO 能量法基础上增加分形维数计算来进行二次判决噪声段和语音段. 与传统端点检测算法相比, 该算法容易实现且准确度高, 实验表明, 在不同的背景噪声下, 该算法相比单一端点检测的算法鲁棒性更好, 弥补了单一算法抗噪性不好的缺点, 能适应低信噪比下的多种噪声环境.

关键词: 端点检测; 能量算子; 分形维数; 噪声

Speech Voice Activity Detection Algorithm Based on

Fractal Dimension and TEO

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Abstract: In order to improve the ability of anti-noise and fractal detection of short time TEO energy, a new algorithm about voice activity detection is proposed which can adapt to a variety of noise environments. The algorithm use the feature of energy distribution characterization of the fractal dimension in the frequency domain and TEO characteristics of zero mean noise elimination and characterization of formant characteristics, add the calculation of fractal dimension to the twice judge noise and voice part based on short-time energy method TEO. Compared with the traditional voice activity detection algorithm, this algorithm is easy to realize and with a high accuracy. The experiments show that in different background noises, the algorithm has a better robust performance compare to the single voice activity detection algorithm, and improve the performance of single algorithm for anti-noise. it can adapt to a variety of noise under the low SNR environment.

Key words: voice activity detection; energy operator; fractal dimension; noise

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