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复子波提取语音信号特征信息

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摘要 对时变性强的非平稳汉语语音信号，建议采用变时－频复子波分析方法提取汉语语音信号的幅度谱、相位谱、基音周期及共振峰信息。选择有n阶消失矩及良好的时频局域化特性的复高斯子波提取汉语语音信号的幅度谱和相位谱，实验结果表明，该方法提取的语音信号的幅度谱、相位谱和子波变换谱表征了汉语语音的音节包络、细节包络及声调，区分了清、浊音，并准确提取了语音信号的动态基音周期、估计出共振峰。这对汉语语音特征提取和识别提供了一种新的思路。

关键词 语音信号 复子波 相位谱 基音周期 共振峰

分类号

Complex wavelets extract character information of speech signal

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Abstract

Chinese speech signal has characteristic of strong variability and the unstability.This paper proposes variable time-frequency complex wavelets method to pick-up information about Chinese speech signal from the wavelet analysis of amplitude spectrum，phase spectrum，pitch and formant information.This paper choose complex Gaussian wavelets which have the numbers of vanishing moments，and have better time-frequency character for extracting Chinese speech signal and phase.The experimental results show that the amplitude spectrum，phase spectrum，wavelet spectra of speech signal great describe the Chinese phonetic syllables envelope，envelope details and tone，extract the dynamic pitch period and accurately estimate resonance peaks.It provides a new way of extracting feature information and recognizing Chinese speech signal.

Key words speech signal complex wavelets phase spectrum pitch period resonance peaks

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