

博士论坛

## Laguerre滤波器在抗噪语音识别特征提取中的应用

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**摘要** 为克服FIR滤波器存在的通阻带特性差、滤波器阶次高等缺点给语音识别系统带来的不利影响, 采用Laguerre滤波器组代替过零峰值幅度特征提取中使用的FIR滤波器组进行前端处理。在仔细研究FIR滤波器参数确定方法的基础上, 叙述了Laguerre滤波器原理及参数计算方法, 并给出了计算结果。孤立词、非特定人语音识别实验结果表明, 使用Laguerre滤波器不仅使识别系统抗噪性能优于使用FIR滤波器, 而且滤波器阶数也大为下降。

**关键词** [语音识别](#) [特征提取](#) [Laguerre滤波器](#)

分类号

## Application of feature extraction in robust-noise speech recognition based on Laguerre filter

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### Abstract

The FIR filter exists the defects which pass band or reject band character is bad and filter order is high. The defects make the speech recognition system performance become bad when FIR filter is used in front-end processing. Aiming at the problem, the paper uses Laguerre filter bank to replace FIR filter bank used in front-end processing of ZCPA (Zero-Crossings with Peak Amplitudes) feature extraction. After researching carefully FIR filter parameters determining method, the paper describes Laguerre filter's parameters determining method, and presents the computing results. The speech recognition experimental results of isolated words and nonspecific persons show that the speech recognition system using Laguerre filter has better robustness to noise than using FIR filter, and the order of Laguerre filter is much lower than one of FIR filter.

**Key words** [speech recognition](#) [feature extraction](#) [Laguerre filter](#)

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