论文

码激励线性预测语音编码器中的非均匀和部分搜索域代数码书

白燕宁, 鲍长春

北京工业大学语音与音频信号处理研究室 北京 100022

摘要
该文基于代数码激励线性预测(ACELP)语音编码算法提出了非均匀和部分搜索域代数码书。非均匀代数码书由代数码书的脉冲非均匀统计特性确定，部分搜索域代数码书则由代数码书矢量的周期性确定，该方法有效地弥补了低比特率情况下代数码书中脉冲数不足的缺点。在使用上述两项技术时，为保持基音的连续性，该编码器对语音段和非语音段采用了不同的基音估计方法。主观和客观的听力测试表明，当该技术应用于4kb/s 散布脉冲码激励线性预测(DP-CELP)语音编码器时，重建语音的质量得到明显改善，尤其是对女性讲话者。

关键词　语音编码　码激励线性预测　散布脉冲码书　部分搜索域代数码书

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Non-uniform and Part-searching-area Algebraic Codebook for Code Excited Linear Prediction Speech Coder

Bai Yan-ning, Bao Chang-chun

Speech and Audio Signal Processing Lab, Beijing University of Technology, Beijing 100022, China

Abstract
This paper presents a non-uniform and part-searching-area algebraic codebook based on Algebraic Code Excited Linear Preiction(ACELP) speech coding algorithm. The non-uniform algebraic codebook is determined by the non-uniform statistical properties of the algebraic codebook, and the part-searching-area is determined by the periodicity of the algebraic codebook excitation vector, which makes up the insufficient numbers of signed pulses in algebraic codebook at low bit rate. In order to preserve the continuity of pitch, different pitch detection methods are employed for speech/silence frame when these two techniques are used. Subjective and objective test results indicate that the reconstructed speech quality of 4kb/s DP-CELP speech coder is improved based on these techniques, especially for the female speakers.

Key words　Speech coding　Code excited linear prediction　Dispersed-pulse codebook　Part-searching-area algebraic codebook

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通讯作者

作者个人主页　白燕宁; 鲍长春

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