URN etd-0407109-183707-531
Author Yu Ruei Tsai
Author's Email Address No Public.
Statistics This thesis had been viewed 67 times. Download 0 times.
Department
Year 2007
Semester 2
Degree Master
Type of Document Master's Thesis
Language zh-TW.Big5 Chinese
Title Complexity Reduction for Stochastic-Codebook Coding of G.729 Speech Coders
Date of Defense 0000-00-00
Page Count 80

Keyword
Speech Coding
ACELP
Analysis-by-Synthesis
Stochastic Codebook Search
Global Pulse Replacement Search

Abstract
The algebraic code excited linear prediction (ACELP) algorithm due to low complexity and high quality in its analysis-by-synthesis optimization has been adopted by many speech coding standards. This thesis studied the stochastic-codebook search of ACELP speech coder, since it is an important component for the quality of the coded speech. In order to reduce the computational complexity of ACELP coders, the focused search, the depth-first tree search and the global pulse-replacement search are suggested in the ITU-T G.729 G.729A and G.729.1, respectively. Based on the global pulse-replacement (GPR) search, this thesis proposed several derivative GPR approaches to reduce the computational complexity of stochastic-codebook search procedure. In addition, the switching search schemes are proposed to reduce the computation required for the ACELP optimization of ITU-T G.729D speech coder. By using two search rounds and limiting the search range, the computational complexity of the proposed approach is only 6.25% of the full search method recommended by G.729D. Simulation results show that the coded speech quality evaluated by using the standard subjective and objective quality measurements is with perceptually negligible degradation.
Advisory Committee Fu Kun Chen - advisor

Files No Any Full Text File.
Date of Submission 2008-07-15