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(54) **RESIDUAL CODING METHOD OF LINEAR PREDICTION CODING COEFFICIENT BASED ON COLLABORATIVE QUANTIZATION, AND COMPUTING DEVICE FOR PERFORMING THE METHOD**

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(57) **ABSTRACT**

Disclosed are a method for coding a residual signal of LPC coefficients based on collaborative quantization and a computing device for performing the method. The residual signal coding method includes: generating encoded LPC coefficients and LPC residual signals by performing LPC analysis and quantization on an input speech; Determining a predicted LPC residual signal by applying the LPC residual signal to cross module residual learning; Performing LPC synthesis using the coded LPC coefficients and the predicted LPC residual signal; It may include the step of determining an output speech that is a synthesized output according to a result of performing the LPC synthesis.
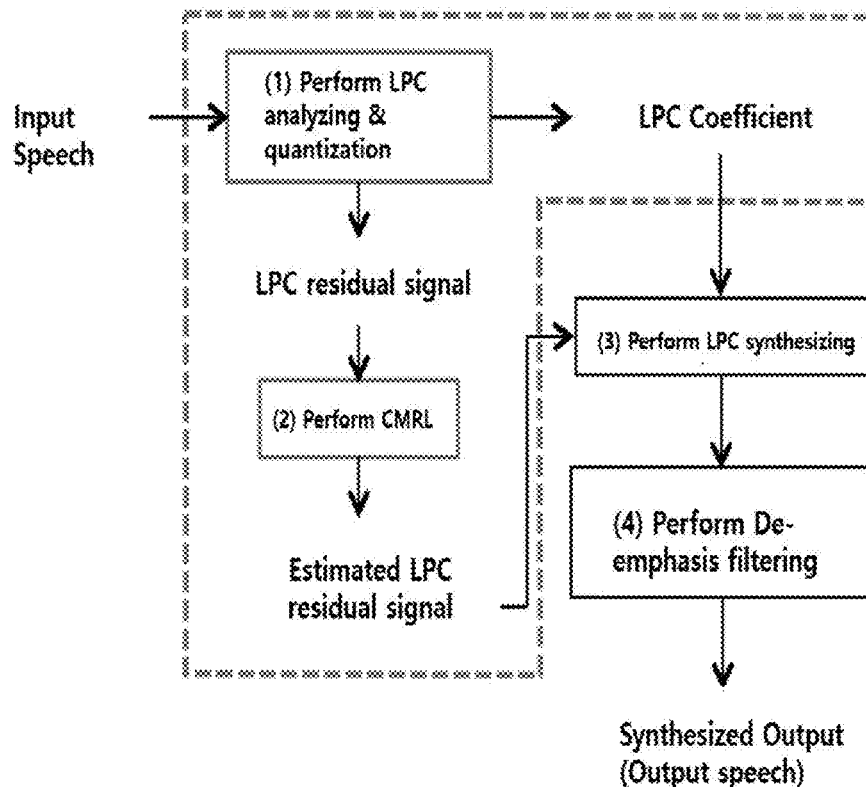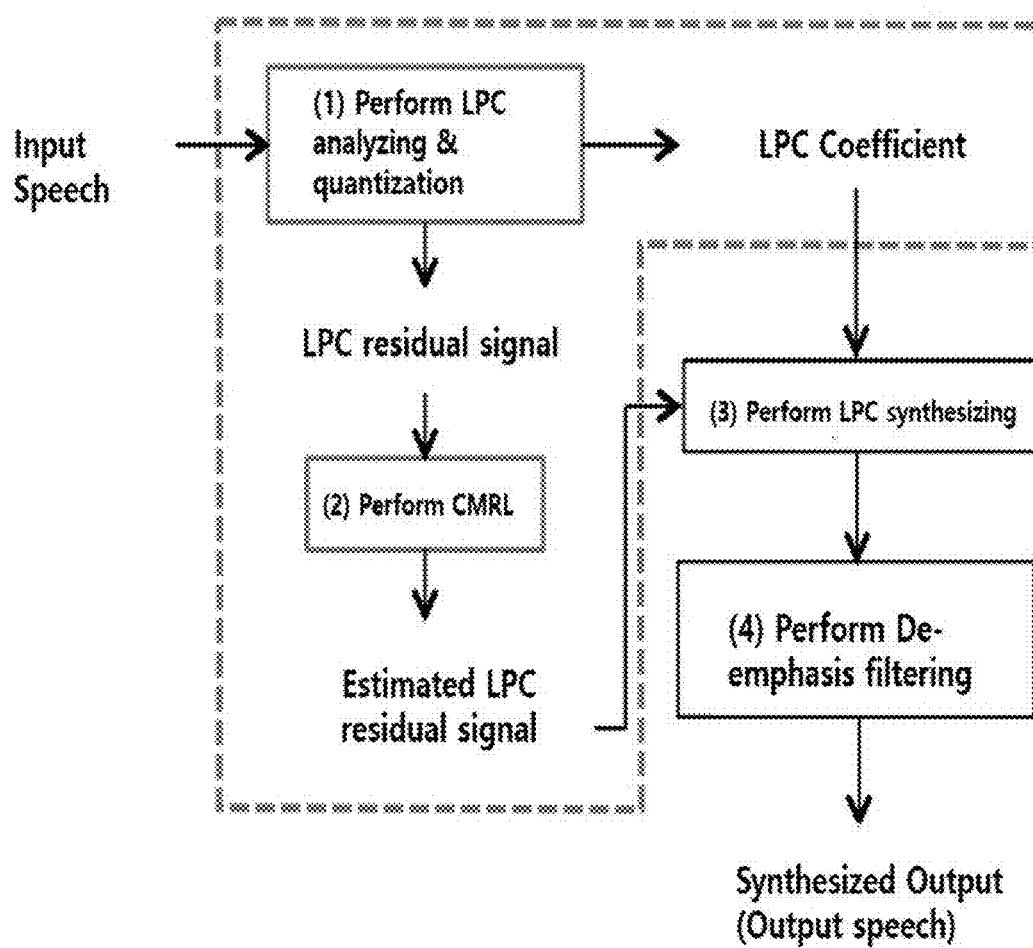
FIG. 1

Input Speech → (1) Perform LPC analyzing & quantization → LPC Coefficient

(1) Perform LPC analyzing & quantization ↓

LPC residual signal

↓

(2) Perform CMRL

↓

Estimated LPC residual signal

LPC Coefficient ↓

(3) Perform LPC synthesizing

↓

(4) Perform De-emphasis filtering

↓

Synthesized Output
(Output speech)

FIG. 2

Input speech

LPC residuals