

with noise for eliminating adverse effects by the noise to provide a sound closer to a pure sound.

What is claimed is:

1. A method for discriminating a digital speech sound comprising dividing digital speech signals into blocks each consisting of a predetermined number of samples, and making a decision for each of said blocks as to whether or not the speech sound is voiced, said method further comprising the steps of

dividing signals of said block into plural sub-blocks,

analyzing said sub-blocks for finding statistical characteristics of each of said sub-blocks,

calculating a bias of said statistical characteristics of said signals in the time domain for enabling a block voiced/unvoiced decision, and

deciding whether said signal blocks are voiced based on said bias of said statistical characteristics in the time domain.

2. The method as claimed in claim 1 wherein said statistical characteristics are found based on the standard deviation of said signals constituting said sub-blocks.

3. The method as claimed in claim 1 wherein said statistical characteristics are found based on the effective values of said signals constituting said sub-blocks.

4. The method as claimed in claim 1 wherein said bias of said statistical characteristics of said signals in the time domain is found based on the arithmetical mean and geometrical mean of said statistical characteristics.

5. The method as claimed in claim 4 wherein a dispersion of said statistical characteristics of said signals in the time domain is found by finding the ratio between the arithmetical mean and geometrical mean of said statistical characteristics.

6. The method as claimed in claim 1 wherein said statistical characteristics are found based on the peak values of said signals constituting said sub-blocks.

7. The method as claimed in claim 6 wherein said statistical characteristics are found by the step of finding the standard deviation of said signals of said blocks and the step of finding a mean peak value from peak values of signals of said sub-blocks and wherein the bias of said statistical characteristics in the time domain is found from the ratio between said standard deviation and said mean peak value.

8. An apparatus for discriminating a digital speech sound by dividing digital speech signals into blocks each consisting of a predetermined number of samples, and making a decision whether or not the speech sound is voiced for each of said blocks, said apparatus comprising

means for dividing signals of said block into plural sub-blocks,

means for finding statistical characteristics of signals of each of said sub-blocks,

means for finding a bias in the time domain of statistical characteristics of signals outputted from said means for finding statistical characteristics of signals of each of said sub-blocks,

and means for deciding whether said signals of said blocks are voiced based on bias data outputted from said means for finding a bias.

9. The apparatus as claimed in claim 8 wherein statistical characteristics of the signals of each of the sub-blocks are calculated by said means for finding statistical characteristics based on the standard deviation of the signals of each of the sub-blocks.

10. The apparatus as claimed in claim 8 wherein statistical characteristics of the signals of each of the sub-blocks are calculated by said means for finding statistical characteristics based on the effective value of the signals of each of the sub-blocks.

11. The apparatus as claimed in claim 8 further comprising arithmetic mean calculating means for finding an arithmetic mean of statistical characteristics of signals and geometric mean calculating means for finding a geometric mean of statistical characteristics of signals, a bias in the time domain of said statistical characteristics of the signals being found from these mean values.

12. The apparatus as claimed in claim 11 further comprising means for finding a ratio between the arithmetic mean and the geometric mean, and bias calculating means for finding the bias of statistical characteristics of the signals based on said ratio.

13. The apparatus as claimed in claim 8 wherein the statistical characteristics of the signals are calculated by said means for finding statistical characteristics based on a peak value of the signals of each of the sub-blocks.

14. The apparatus as claimed in claim 13 wherein said means for finding statistical characteristics comprise standard deviation calculating means for finding the standard deviation of the signals of each of said blocks, mean peak value calculating means for calculating a mean peak value from the peak value of the signals of each of the sub-blocks, and bias calculating means for finding the bias of statistical characteristics of the signals from the ratio between the standard deviation and the mean peak value.

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