Claims

1. An apparatus for decoding audio signal information associated to an audio signal divided in a sequence of frames, each frame of the sequence of frames being one of a first frame, a second frame, and a third frame, the apparatus comprising:

a bitstream reader configured to read encoded audio signal information having:

an encoded representation of the audio signal for the first frame, the second frame, and the third frame;

a first pitch information for the first frame and a first control data item having a first value; and

a second pitch information for the second frame and a second control data item having a second value being different from the first value, wherein the first control data item and the second control data item are in the same field; and

a third control data item for the first frame, the second frame, and the third frame, the third control data item indicating the presence or absence of the first pitch information and/or the second pitch information, the third control data item being encoded in one single bit having a value which distinguishes the third frame from the first and second frame, the third frame having a format which lacks the first pitch information, the first control data item, the second pitch information, and the second control data item;

a controller configured to control a long term post filter, LTPF, and to:

check the third control data item to verify whether a frame is a third frame and, in case of verification that the frame is not a third frame, check the first data item and second control data item to verify whether the frame is a first frame or second frame, so as to:

filter a decoded representation of the audio signal in the second frame using the second pitch information, and store the second pitch information to conceal a subsequent non-properly decoded audio frame, in case it is verified that the second control data item has the second value;

deactivate the LTPF for the first frame, but store the first pitch information to conceal a subsequent non-properly decoded audio frame, in case it is verified that the first control data item has the first value; and

both deactivate the LTPF and the storing of pitch information to conceal a subsequent non-properly decoded audio frame, in case it is verified from the third control data item that the frame is a third frame.

2. The apparatus of claim 1, wherein:

in the encoded audio signal information, for the first frame, one single bit is reserved for the first control data item and a fixed data field is reserved for the first pitch information.

3. The apparatus of any of the preceding claims, wherein:

in the encoded audio signal information, for the second frame, one single bit is reserved for the second control data item and a fixed data field is reserved for the second pitch information.

4. The apparatus of any of the preceding claims, further comprising:

a concealment unit configured to use the first and/or second pitch information to conceal a subsequent non-properly decoded audio frame.

5. The apparatus of claim 4, the concealment unit being configured to:

in case of determination of decoding of an invalid frame, check whether pitch information relating a previously correctly decoded frame is stored,

so as to conceal an invalidly decoded frame with a frame obtained using the stored pitch information.

6. An apparatus for encoding audio signals, comprising:

a pitch estimator configured to obtain pitch information associated to a pitch of an audio signal;

a signal analyzer configured to obtain harmonicity information associated to the harmonicity of the audio signal; and

a bitstream former configured to prepare encoded audio signal information encoding frames so as to include in the bitstream:

an encoded representation of the audio signal for a first frame, a second frame, and a third frame;

a first pitch information for the first frame and a first control data item having a first value;

a second pitch information for the second frame and a second control data item having a second value being different from the first value; and

a third control data item for the first, second and third frame,

wherein the first value and the second value depend on a second criteria associated to the harmonicity information, and

the first value indicates a non-fulfilment of the second criteria for the harmonicity of the audio signal in the first frame, and

the second value indicates a fulfilment of the second criteria for the harmonicity of the audio signal in the second frame,

wherein the second criteria comprise at least a condition which is fulfilled when at least one second harmonicity measurement is greater than at least one second threshold,

the third control data item being encoded in one single bit having a value which distinguishes the third frame from the first and second frame, the third frame being encoded in case of non-fulfilment of a first criteria and the first and second frames being encoded in case of fulfilment of the first criteria, wherein the first criteria comprise at least a condition which is fulfilled when at least one first harmonicity measurement is greater than at least one first threshold,

wherein, in the bitstream, for the first frame, one single bit is reserved for the first control data item and a fixed data field is reserved for the first pitch information,

wherein, in the bitstream, for the second frame, one single bit is reserved for the second control data item and a fixed data field is reserved for the second pitch information, and

wherein, in the bitstream, for the third frame, no bit is reserved for the fixed data field and/or for the first and second control item.

7. The apparatus of claim 6, wherein the second criteria comprise at least an additional condition which is fulfilled when at least one harmonicity measurement of the previous frame is greater than the at least one additional threshold.

8. The apparatus of any of claims 6 or 7, wherein the first and second harmonicity measurements are obtained at different sampling rates.

9. The apparatus of any of claims 6-8, wherein:

the pitch information comprises a pitch lag information or a processed version thereof.

10. The apparatus of any of claims 6-9, wherein:

the harmonicity information comprises at least one of an autocorrelation value and/or a normalized autocorrelation value and/or a processed version thereof.

11. A method for decoding audio signal information associated to an audio signal divided in a sequence of frames, wherein each frame is one of a first frame, a second frame, and a third frame, the method comprising:

reading an encoded audio signal information comprising:

an encoded representation of the audio signal for the first frame and the second frame;

a first pitch information for the first frame and a first control data item having a first value;

a second pitch information for the second frame and a second control data item having a second value being different from the first value, wherein the first control data item and the second control data item are in the same field; and

a third control data item for the first frame, the second frame, and the third frame, the third control data item indicating the presence or absence of the first pitch information and/or the second pitch information, the third control data item being encoded in one single bit having a value which distinguishes the third frame from the first and second frame, the third frame having a format which lacks the first pitch information, the first control data item, the second pitch information, and the second control data item,

at the determination that the first control data item has the first value, using the first pitch information for a long term post filter, LTPF, and for an error concealment function;

at the determination of the second value of the second control data item, deactivating the LTPF but using the second pitch information for the error concealment function; and

at the determination that the frame is a third frame, deactivating the LTPF and deactivating the use of the encoded representation of the audio signal for the error concealment function.

12. A method for encoding audio signal information associated to a signal divided into frames, comprising:

obtaining measurements from the audio signal;

verifying the fulfilment of a second criteria, the second criteria being based on the measurements and comprising at least one condition which is fulfilled when at least one second harmonicity measurement is greater than a second threshold;

forming an encoded audio signal information having frames including:

an encoded representation of the audio signal for a first frame and a second frame and a third frame;

a first pitch information for the first frame and a first control data item having a first value and a third control data item;

a second pitch information for the second frame and a second control data item having a second value being different from the first value and a third control data item,

wherein the first value and the second value depend on the second criteria, and the first value indicates a non-fulfilment of the second criteria on the basis of a harmonicity of the audio signal in the first frame, and the second value indicates a fulfilment of the second criteria on the basis of a harmonicity of the audio signal in the second frame,

the third control data item being one single bit having a value which distinguishes the third frame from the first and second frames in association to the fulfilment of first criteria, so as to identify the third frame when the third control data item indicates the non-fulfilment of the first criteria, on the basis of at least one condition which is fulfilled when at least one first harmonicity measurement is higher than at least one first threshold,

wherein the encoded audio signal information is formed so that, for the first frame, one single bit is reserved for the first control data item and a fixed data field for the first pitch information, and

wherein the encoded audio signal information is formed so that, for the second frame, one single bit is reserved for the second control data item and a fixed data field for the second pitch information, and

wherein the encoded audio signal information is formed so that, for the third frame, no bit is reserved for the fixed data field and no bit is reserved for the first control data item and the second control data item.

13. A non-transitory memory unit storing instructions which, when executed by a processor, perform a method according to any of claims 11-12.