

CLAIMS

1. A method for predicting a video colour component, applied to a decoder and comprising:

acquiring first colour component neighboring reference values, second colour component neighboring reference values and first colour component reconstructed values corresponding to a current block, wherein the first and second colour component neighboring reference values represent respectively values of different first and second colour components corresponding to a neighboring reference sample of the current block, the current block having a plurality of neighboring reference samples, and the first colour component reconstructed values represent reconstructed values of a first colour component corresponding to the current block;

determining a weight coefficient corresponding to each neighboring reference sample according to a correlation between the neighboring reference sample and the current block;

determining a scaling factor according to the weight coefficients, the first colour component neighboring reference values and the second colour component neighboring reference values; and

obtaining second colour component predicted values corresponding to the current block based on a linear model corresponding to the scaling factor and the first colour component reconstructed values.

2. The method of claim 1, wherein determining the scaling factor according to the weight coefficients, the first colour component neighboring reference values and the second colour component neighboring reference values comprises:

inputting the weight coefficients, the first colour component neighboring reference values and the second colour component neighboring reference values to a preset factor calculation model to obtain the scaling factor.

3. The method of claim 1, before obtaining the second colour component predicted values corresponding to the current block based on the linear model corresponding to the scaling factor and the first colour component reconstructed values, further comprising:

acquiring second colour component estimated values corresponding to the current block, wherein the second colour component estimated values are obtained by performing component prediction according to a second colour component corresponding to the current

block.

4. The method of claim 1, further comprising:

setting weight coefficients of part of reference samples corresponding to part of neighboring reference values as zero, wherein position correlations between the current block and the part of reference samples do not meet a preset threshold; or,

removing part of reference samples from the neighboring reference samples, wherein position correlations between the current block and the part of reference samples do not meet a preset threshold; or

performing screening on the neighboring reference samples.

5. The method of claim 4, wherein performing screening on the neighboring reference samples comprises:

performing downsampling on the neighboring reference samples to determine part of reference samples.

6. The method of claim 1, wherein the neighboring reference samples comprise at least one of an upper reference sample of the current block, an upper-left reference sample of the current block or a left reference sample of the current block; and

the neighboring reference samples further comprise at least one of an upper-right reference sample of the current block or a bottom-left reference sample of the current block.

7. The method of claim 1, wherein the scaling factor is a coefficient of the linear model, and the linear model is configured for predicting a second colour component according to the first colour component.

8. A decoder, comprising an acquisition section and a determination section, wherein

the acquisition section is configured to acquire first colour component neighboring reference values, second colour component neighboring reference values and first colour component reconstructed values corresponding to a current block, wherein the first and second colour component neighboring reference values represent respectively values of different first and second colour components corresponding to a neighboring reference sample of the current block, the current block having a plurality of neighboring reference samples, and the first colour component reconstructed values represent reconstructed values of a first

colour component corresponding to the current block;

the acquisition section is further configured to determine a weight coefficient corresponding to each neighboring reference sample according to a correlation between the neighboring reference sample and the current block; and

the determination section is configured to determine a scaling factor according to the weight coefficients, the first colour component neighboring reference values and the second colour component neighboring reference values; and

the acquisition section is further configured to obtain second colour component predicted values corresponding to the current block based on a linear model corresponding to the scaling factor and the first colour component reconstructed values.

9. The decoder of claim 8, wherein the determination section is configured to:

input the weight coefficients, the first colour component neighboring reference values and the second colour component neighboring reference values to a preset factor calculation model to obtain the scaling factor.

10. The decoder of claim 8, wherein the acquisition section is configured to, before obtaining the second colour component predicted values corresponding to the current block based on the linear model corresponding to the scaling factor and the first colour component reconstructed values,

acquire second colour component estimated values corresponding to the current block, wherein the second colour component estimated values are obtained by performing component prediction according to a second colour component corresponding to the current block.

11. The decoder of claim 8, further comprising a setting section, configured to set weight coefficients of part of reference samples corresponding to part of neighboring reference values as zero, wherein position correlations between the current block and the part of reference samples do not meet a preset threshold;

wherein the determination section is configured to:

remove part of reference samples from the neighboring reference samples, wherein position correlations between the current block and the part of reference samples do not meet a preset threshold; or,

perform screening on the neighboring reference samples.

12. The decoder of claim 11, wherein the determination section is configured to:

perform downsampling on the neighboring reference samples to determine part of reference samples.

13. The decoder of claim 8, wherein the neighboring reference samples comprise at least one of an upper reference sample of the current block, an upper-left reference sample of the current block or a left reference sample of the current block; and

the neighboring reference samples further comprise at least one of an upper-right reference sample of the current block or a bottom-left reference sample of the current block.

14. A method for predicting a video colour component, applied to an encoder and comprising:

acquiring first colour component neighboring reference values, second colour component neighboring reference values and first colour component reconstructed values corresponding to a current block, wherein the first and second colour component neighboring reference values represent respectively values of different first and second colour components corresponding to a neighboring reference sample of the current block, the current block having a plurality of neighboring reference samples, and the first colour component reconstructed values represent reconstructed values of a first colour component corresponding to the current block;

determining a weight coefficient corresponding to each neighboring reference sample according to a correlation between the neighboring reference sample and the current block;

determining a scaling factor according to the weight coefficients, the first colour component neighboring reference values and the second colour component neighboring reference values; and

obtaining second colour component predicted values corresponding to the current block based on a linear model corresponding to the scaling factor and the first colour component reconstructed values.

15. The method of claim 14, wherein determining the scaling factor according to the weight coefficients, the first colour component neighboring reference values and the second colour component neighboring reference values comprises:

inputting the weight coefficients, the first colour component neighboring reference values and the second colour component neighboring reference values to a preset factor

calculation model to obtain the scaling factor.

16. The method of claim 14, wherein the first colour component neighboring reference values and the first colour component reconstructed values corresponding to the current block comprise at least two groups of first colour component neighboring reference values and first colour component reconstructed values, the method further comprises:

determining weight coefficients for each group of first colour component neighboring reference values and first colour component reconstructed values;

inputting the weight coefficients, the first colour component neighboring reference values and the second colour component neighboring reference values to the preset factor calculation model to obtain at least two groups of scaling factors corresponding to the at least two groups of first colour component neighboring reference values and first colour component reconstructed values; and

selecting one group of scaling factors from the at least two groups of scaling factors.

17. The method of claim 14, before obtaining the second colour component predicted values corresponding to the current block based on the linear model corresponding to the scaling factor and the first colour component reconstructed values, further comprising:

acquiring second colour component estimated values corresponding to the current block, wherein the second colour component estimated values are obtained by performing component prediction according to a second colour component corresponding to the current block.

18. The method of claim 14, further comprising:

setting weight coefficients of part of reference samples corresponding to part of neighboring reference values as zero, wherein position correlations between the current block and the part of reference samples do not meet a preset threshold; or,

removing part of reference samples from the neighboring reference samples, wherein position correlations between the current block and the part of reference samples do not meet a preset threshold; or,

performing screening on the neighboring reference samples.

19. The method of claim 18, wherein performing screening on the neighboring reference samples comprises:

performing downsampling on the neighboring reference samples to determine part of reference samples.

20. The method of claim 14, wherein the neighboring reference samples comprise at least one of an upper reference sample of the current block, an upper-left reference sample of the current block or a left reference sample of the current block; and

the neighboring reference samples further comprise at least one of an upper-right reference sample of the current block or a bottom-left reference sample of the current block.

21. The method of claim 14, wherein the scaling factor is a coefficient of the linear model, and the linear model is configured for predicting a second colour component according to the first colour component.

22. An encoder, comprising an acquisition section and a determination section, wherein

the acquisition section is configured to acquire first colour component neighboring reference values, second colour component neighboring reference values and first colour component reconstructed values corresponding to a current block, wherein the first and second colour component neighboring reference values represent respectively values of different first and second colour components corresponding to a neighboring reference sample of the current block, the current block having a plurality of neighboring reference samples, and the first colour component reconstructed values represent reconstructed values of a first colour component corresponding to the current block;

the acquisition section is further configured to determine a weight coefficient corresponding to each neighboring reference sample according to a correlation between the neighboring reference sample and the current block; and

the determination section is configured to determine a scaling factor according to the weight coefficients, the first colour component neighboring reference values and the second colour component neighboring reference values; and

the acquisition section is further configured to obtain second colour component predicted values corresponding to the current block based on a linear model corresponding to the scaling factor and the first colour component reconstructed values.

23. The encoder of claim 22, wherein the first colour component neighboring reference values and the first colour component reconstructed values corresponding to the current block

comprise at least two groups of first colour component neighboring reference values and first colour component reconstructed values, and the determination section is configured to:

determine weight coefficients for each group of first colour component neighboring reference values and first colour component reconstructed values;

input the weight coefficients, the first colour component neighboring reference values and the second colour component neighboring reference values to the preset factor calculation model to obtain at least two groups of scaling factors corresponding to the at least two groups of first colour component neighboring reference values and first colour component reconstructed values; and

select one group of scaling factors from the at least two groups of scaling factors.

24. The encoder of claim 22, further comprising a setting section, configured to set weight coefficients of part of reference samples corresponding to part of neighboring reference values as zero, wherein position correlations between the current block and the part of reference samples do not meet a preset threshold;

wherein the determination section is configured to:

remove part of reference samples from the neighboring reference samples, wherein position correlations between the current block and the part of reference samples do not meet a preset threshold; or,

perform screening on the neighboring reference samples.

25. The encoder of claim 22, wherein the neighboring reference samples comprise at least one of an upper reference sample of the current block, an upper-left reference sample of the current block or a left reference sample of the current block; and

the neighboring reference samples further comprise at least one of an upper-right reference sample of the current block or a bottom-left reference sample of the current block.