CLAIMS

1. A method for coding an image, comprising:

determining a current intra coding block that uses a constrained intra prediction method among current inter coded frames;

determining that neighboring coding blocks that are adjacent to the current intra coding block comprise a neighboring inter coding block;

updating image data in the neighboring inter coding block based on an invariable value or image data in a neighboring intra coding block comprised in the neighboring coding blocks; and

coding the current intra coding block based on the updated image data in the neighboring inter coding block.

2. The method according to claim 1, comprising: determining according to a constrained intra prediction flag in a bit stream that the current coding block uses a constrained intra prediction method for coding.

3. The method according to claim 1, wherein the updating the image data in the neighboring inter coding block comprises:

updating only one row or one column of pixel data in the neighboring inter coding block adjacent to the current intra coding block.

4. The method according to any one of claims 1 to 3, wherein the updating the image data in the neighboring inter coding block comprises:

determining that the neighboring coding blocks further comprise at least one neighboring intra coding block; and

updating the image data in the neighboring inter coding block based on image data in a neighboring intra coding block that is most adjacent to the neighboring inter coding block.

5. The method according to any one of claims 1 to 3, wherein the updating the image data in the neighboring inter coding block comprises:

determining that the neighboring coding blocks further comprise at least two neighboring intra coding blocks; and

updating the image data in the neighboring inter coding block based on image data in the at least two neighboring intra coding blocks through weighted average of distances from the at least two neighboring intra coding blocks to the current intra coding block.

6. The method according to any one of claims 1 to 3, wherein the updating the image data in the neighboring inter coding block comprises:

updating the image data in the neighboring inter coding block to an invariable value when determining that all the neighboring coding blocks are inter coding blocks.

7. The method according to any one of claims 1 to 3, wherein the updating the image data in the neighboring inter coding block comprises:

updating image data in all the neighboring coding blocks to an invariable value.

8. A method for decoding an image, comprising:

determining a current intra coding block that uses a constrained intra prediction method among current inter coded frames;

determining that neighboring coding blocks that are adjacent to the current intra coding block comprise a neighboring inter coding block;

updating image data in the neighboring inter coding block based on an invariable value or image data in a neighboring intra coding block comprised in the neighboring coding blocks; and

decoding the current intra coding block based on the updated image data in the neighboring inter coding block.

9. The method according to claim 8, wherein it is determined according to a corresponding coding method identifier of the current coding block of the current inter coded frame in a bit stream that the current coding block uses an intra-frame coding method for coding.

10. The method according to claim 8, wherein it is determined according to a constrained intra prediction flag in a bit stream that the current coding block uses a constrained intra prediction method for coding.

11. The method according to claim 8, wherein the updating the image data in the neighboring inter coding block comprises:

updating only one row or one column of pixel data in the neighboring inter coding block adjacent to the current intra coding block.

12. The method according to any one of claims 8 to 11, wherein the updating the image data in the neighboring inter coding block comprises:

determining that the neighboring coding blocks further comprise at least one neighboring intra coding block; and

updating the image data in the neighboring inter coding block based on image data in a neighboring intra coding block that is most adjacent to the neighboring inter coding block.

13. The method according to any one of claims 8 to 11, wherein the updating the image data in the neighboring inter coding block comprises:

determining that the neighboring coding blocks further comprise at least two neighboring intra coding blocks; and

updating the image data in the neighboring inter coding block based on image data in the at least two neighboring intra coding blocks through weighted average of distances from the at least two neighboring intra coding blocks to the current intra coding block.

14. The method according to any one of claims 8 to 11, wherein the updating the image data in the neighboring inter coding block comprises:

updating the image data in the neighboring inter coding block to an invariable value when determining that all the neighboring coding blocks are inter coding blocks.

15. The method according to any one of claims 8 to 11, wherein the updating the image data in the neighboring inter coding block comprises:

updating image data in all the neighboring coding blocks to an invariable value.

16. A method for processing image data, comprising:

determining that all coding blocks in a current coding object use a constrained intra prediction method;

among neighboring coding blocks that are adjacent to a current intra coding block, determining a specific neighboring coding block that belongs to a different coding object from the current intra coding block;

determining that the specific neighboring coding block is a neighboring inter coding block that uses an inter-frame coding method for coding;

updating image data in the neighboring inter coding block based on an invariable value or image data in a neighboring intra coding block comprised in the neighboring coding blocks; and

coding or decoding the current intra coding block based on the updated image data in the neighboring inter coding block.

17. The method according to claim 16, wherein it is determined according to a constrained intra prediction flag in a bit stream that all intra coding blocks in the coding object use a constrained intra prediction method for coding or decoding.

18. The method according to claim 16, wherein the updating the image data in the neighboring inter coding block comprises:

updating only one row or one column of pixel data in the neighboring inter coding block adjacent to the current intra coding block.

19. The method according to any one of claims 16 to 18, wherein the updating the image data in the neighboring inter coding block comprises:

determining that the neighboring coding blocks further comprise at least one neighboring intra coding block; and

updating image data in the neighboring inter coding block based on image data in a

neighboring intra coding block that is most adjacent to the neighboring inter coding block.

20. The method according to any one of claims 16 to 18, wherein the updating the image data in the neighboring inter coding block comprises:

determining that the neighboring coding blocks further comprise at least two neighboring intra coding blocks; and

updating the image data in the neighboring inter coding block based on image data in the at least two neighboring intra coding blocks through weighted average of distances from the at least two neighboring intra coding blocks to the current intra coding block.

21. The method according to any one of claims 16 to 18, wherein the updating the image data in the neighboring inter coding block comprises:

updating the image data in the neighboring inter coding block to an invariable value when determining that all the neighboring coding blocks are inter coding blocks.

22. The method according to any one of claims 16 to 18, wherein the updating the image data in the neighboring inter coding block comprises:

updating image data in all the neighboring coding blocks to an invariable value.

23. A device for coding an image, wherein the device comprises:

a first determining module, configured to determine a current intra coding block that uses a constrained intra prediction method among current inter coded frames;

a second determining module, configured to determine that neighboring coding blocks that are adjacent to the current intra coding block comprise a neighboring inter coding block;

an updating module, configured to update image data in the neighboring inter coding blocks based on an invariable value or image data in a neighboring intra coding block comprised in the neighboring coding blocks; and

an coding module, configured to code the current intra coding block based on the updated image data in the neighboring inter coding block.

24. The device according to claim 23, wherein the updating module comprises:

a first determining unit, configured to determine that the neighboring coding blocks further comprise at least one neighboring intra coding block; and

a first updating unit, configured to update the image data in the neighboring inter coding block based on image data in a neighboring intra coding block that is most adjacent to the neighboring inter coding block.

25. The device according to claim 23, wherein the updating module comprises:

a second determining unit, configured to determine that the neighboring coding blocks further comprise at least two neighboring intra coding blocks; and

a second updating unit, configured to update the image data in the neighboring inter coding block based on image data in the at least two neighboring intra coding blocks through weighted average of distances from the at least two neighboring intra coding blocks to the current intra coding block.

26. The device according to claim 23, wherein the updating module comprises:

a third updating unit, configured to update the image data in the neighboring inter coding block to an invariable value when determining that all the neighboring coding blocks are inter coding blocks.

27. The device according to claim 23, wherein the updating module comprises:

a fourth updating unit, configured to update image data in all the neighboring coding blocks to an invariable value.

28. A device for decoding an image, wherein the device comprises:

a first determining module, configured to determine a current intra coding block that uses a constrained intra prediction method among current inter coded frames;

a second determining module, configured to determine that neighboring coding blocks that are adjacent to the current intra coding block comprise a neighboring inter coding block;

an updating module, configured to update image data in the neighboring inter coding blocks based on an invariable value or image data in a neighboring intra coding block comprised in the neighboring coding blocks; and

a decoding module, configured to decode the current intra coding block based on the updated image data in the neighboring inter coding block.

29. The device according to claim 28, wherein the updating module comprises:

a first determining unit, configured to determine that the neighboring coding blocks further comprise at least one neighboring intra coding block; and

a first updating unit, configured to update image data in the neighboring inter coding block based on image data in a neighboring intra coding block that is most adjacent to the neighboring inter coding block.

30. The device according to claim 28, wherein the updating module comprises:

a second determining unit, configured to determine that the neighboring coding blocks further comprise at least two neighboring intra coding blocks; and

a second updating unit, configured to update the image data in the neighboring inter coding block based on image data in the at least two neighboring intra coding blocks through weighted average of distances from the at least two neighboring intra coding blocks to the current intra coding block.

31. The device according to claim 28, wherein the updating module comprises:

a third updating unit, configured to update the image data in the neighboring inter coding block to an invariable value when determining that all the neighboring coding blocks are inter coding blocks.

32. The device according to claim 28, wherein the updating module comprises:

a fourth updating unit, configured to update image data in all the neighboring coding blocks to an invariable value.

33. A device for processing image data, wherein the device comprises:

a first determining module, configured to determine that all coding blocks in a current coding object use a constrained intra prediction method;

a second determining module, configured to determine, among neighboring coding blocks that are adjacent to a current intra coding block, a specific neighboring coding block that belongs to a different coding object from the current intra coding block;

a third determining module, configured to determine that the specific neighboring coding block is a neighboring inter coding block that uses an inter-frame coding method for coding;

an updating module, configured to update image data in the neighboring inter coding blocks based on an invariable value or image data in a neighboring intra coding block comprised in the neighboring coding blocks; and

an coding/decoding module, configured to code or decode the current intra coding block based on the updated image data in the neighboring inter coding block.

34. The device according to claim 33, wherein the updating module comprises:

a first determining unit, configured to determine that the neighboring coding blocks further comprise at least one neighboring intra coding block; and

a first updating unit, configured to update image data in the neighboring inter coding block based on image data in a neighboring intra coding block that is most adjacent to the neighboring inter coding block.

35. The device according to claim 33, wherein the updating module comprises:

a second determining unit, configured to determine that the neighboring coding blocks further comprise at least two neighboring intra coding blocks; and

a second updating unit, configured to update the image data in the neighboring inter coding block based on image data in the at least two neighboring intra coding blocks through weighted average of distances from the at least two neighboring intra coding blocks to the current intra coding block.

36. The device according to claim 33, wherein the updating module comprises:

a third updating unit, configured to update the image data in the neighboring inter coding block to an invariable value when determining that all the neighboring coding blocks are inter coding blocks.

37. The device according to claim 33, wherein the updating module comprises:

a fourth updating unit, configured to update image data in all the neighboring coding blocks to an invariable value.

The claims defining the invention are as follows:

1. A method for coding an image, comprising:

determining from among a current inter coded frame, comprising a plurality of intra coding blocks and inter coding blocks, a current intra coding block that uses a constrained intra prediction method among;

determining from the plurality of intra coding blocks and inter coding blocks neighboring coding blocks that are adjacent to the current intra coding block, wherein the neighboring coding blocks comprise a neighboring inter coding block and a neighboring intra coding block;

updating image data in the neighboring inter coding block based on an invariable value or image data in a neighboring intra coding block ; and

coding the current intra coding block based on the updated image data in the neighboring inter coding block;

wherein the step updating image data in the neighboring inter coding block based on image data in the neighboring intra coding block comprises:

determining that the neighboring coding blocks further comprise at least one neighboring intra coding block or at least two neighboring intra coding blocks; and

when determining that the neighboring coding blocks further comprise at least one neighboring intra coding block, updating the image data in the neighboring inter coding block based on image data in a neighboring intra coding block that is most adjacent to the neighboring inter coding block;

when determining that the neighboring coding blocks further comprise at least two neighboring intra coding blocks, updating the image data in the neighboring inter coding block based on image data in the at least two neighboring intra coding blocks through weighted average of distances from the at least two neighboring intra coding blocks to the current intra coding block.

2. The method according to claim 1, comprising: determining according to a constrained intra prediction flag in a bit stream that the current coding block uses a

constrained intra prediction method for coding.

3. The method according to claim 1, wherein the updating the image data in the neighboring inter coding block comprises:

updating only one row or one column of pixel data in the neighboring inter coding block adjacent to the current intra coding block.

4. The method according to any one of claims 1 to 3, wherein the updating the image data in the neighboring inter coding block comprises:

updating the image data in the neighboring inter coding block to an invariable value when determining that all the neighboring coding blocks are inter coding blocks.

5. The method according to any one of claims 1 to 3, wherein the updating the image data in the neighboring inter coding block comprises:

updating image data in all the neighboring coding blocks to an invariable value.

6. A method for decoding an image, comprising:

determining from among a current inter coded frame, comprising a plurality of intra coding blocks and inter coding blocks, a current intra coding block that uses a constrained intra prediction method;

determining from the plurality of intra coding blocks and inter coding blocks neighboring coding blocks that are adjacent to the current intra coding block, wherein the neighboring coding blocks comprise a neighboring inter coding block and a neighboring intra coding block;

updating image data in the neighboring inter coding block based on an invariable value or image data in a neighboring intra coding block; and

decoding the current intra coding block based on the updated image data in the neighboring inter coding block;

wherein the step updating image data in the neighboring inter coding block based on image data in the neighboring intra coding block comprises:

determining that the neighboring coding blocks further comprise at least one neighboring intra coding block or at least two neighboring intra coding blocks; and

when determining that the neighboring coding blocks further comprise at least

one neighboring intra coding block, updating the image data in the neighboring inter coding block based on image data in a neighboring intra coding block that is most adjacent to the neighboring inter coding block;

when determining that the neighboring coding blocks further comprise at least two neighboring intra coding blocks, updating the image data in the neighboring inter coding block based on image data in the at least two neighboring intra coding blocks through weighted average of distances from the at least two neighboring intra coding blocks to the current intra coding block.

7. The method according to claim 6, wherein it is determined according to a corresponding coding method identifier of the current coding block of the current inter coded frame in a bit stream that the current coding block uses an intra-frame coding method for coding.

8. The method according to claim 6, wherein it is determined according to a constrained intra prediction flag in a bit stream that the current coding block uses a constrained intra prediction method for coding.

9. The method according to claim 6, wherein the updating the image data in the neighboring inter coding block comprises:

updating only one row or one column of pixel data in the neighboring inter coding block adjacent to the current intra coding block.

10. The method according to any one of claims 6 to 9, wherein the updating the image data in the neighboring inter coding block comprises:

updating the image data in the neighboring inter coding block to an invariable value when determining that all the neighboring coding blocks are inter coding blocks.

11. The method according to any one of claims 6 to 9, wherein the updating the image data in the neighboring inter coding block comprises:

updating image data in all the neighboring coding blocks to an invariable value.

12. A device for coding an image, wherein the device comprises:

a first determining module, configured to determine from among a current inter coded frame, comprising a plurality of intra coding blocks and inter coding blocks, a

current intra coding block that uses a constrained intra prediction method;

a second determining module, configured to determine from the plurality of inter coding blocks neighboring coding blocks that are adjacent to the current intra coding block, wherein the neighboring coding blocks comprise a neighboring inter coding block and a neighboring intra coding block;

an updating module, configured to update image data in the neighboring inter coding blocks based on an invariable value or image data in the neighboring intra coding block; and

an coding module, configured to code the current intra coding block based on the updated image data in the neighboring inter coding block;

wherein the updating module comprises:

a first determining unit, configured to determine that the neighboring coding blocks further comprise at least one neighboring intra coding block; and

a first updating unit, configured to update the image data in the neighboring inter coding block based on image data in a neighboring intra coding block that is most adjacent to the neighboring inter coding block;

or,

a second determining unit, configured to determine that the neighboring coding blocks further comprise at least two neighboring intra coding blocks; and

a second updating unit, configured to update the image data in the neighboring inter coding block based on image data in the at least two neighboring intra coding blocks through weighted average of distances from the at least two neighboring intra coding blocks to the current intra coding block.

13. The device according to claim 12, wherein the updating module comprises:

a third updating unit, configured to update the image data in the neighboring inter coding block to an invariable value when determining that all the neighboring coding blocks are inter coding blocks.

14. The device according to claim 12, wherein the updating module comprises:

a fourth updating unit, configured to update image data in all the neighboring coding blocks to an invariable value.

15. A device for decoding an image, wherein the device comprises:

a first determining module, configured to determine from among a current inter coded frame, comprising a plurality of intra coding blocks and inter coding blocks, a current intra coding block that uses a constrained intra prediction method ;

a second determining module, configured to determine from the plurality of intra coding blocks and inter coding blocks neighboring coding blocks that are adjacent to the current intra coding block, wherein the neighboring coding blocks comprise a neighboring inter coding block and a neighboring intra coding block;

an updating module, configured to update image data in the neighboring inter coding blocks based on an invariable value or image data in the neighboring intra coding block; and

a decoding module, configured to decode the current intra coding block based on the updated image data in the neighboring inter coding block;

wherein the updating module comprises:

a first determining unit, configured to determine that the neighboring coding blocks further comprise at least one neighboring intra coding block; and

a first updating unit, configured to update image data in the neighboring inter coding block based on image data in a neighboring intra coding block that is most adjacent to the neighboring inter coding block;

or

a second determining unit, configured to determine that the neighboring coding blocks further comprise at least two neighboring intra coding blocks; and

a second updating unit, configured to update the image data in the neighboring inter coding block based on image data in the at least two neighboring intra coding blocks through weighted average of distances from the at least two neighboring intra coding blocks to the current intra coding block.

16. The device according to claim 15, wherein the updating module comprises:

a third updating unit, configured to update the image data in the neighboring inter coding block to an invariable value when determining that all the neighboring coding blocks are inter coding blocks.

17. The device according to claim 15, wherein the updating module comprises:

a fourth updating unit, configured to update image data in all the neighboring coding blocks to an invariable value.