CLAIMS

What is claimed is:

1. A decoding method, comprising:

obtaining an entropy segment i from a bitstream, wherein the entropy segment i is one entropy segment among N entropy segments, the N entropy segments constitute a representation of an input data in a latent space, the entropy segment i has no overlap region with its adjacent entropy segment, N is a positive integer greater than one, i=1, …, N;

determining a synthesis segment i according to the entropy segment i and/or at least one entropy segment adjacent to the entropy segment i, wherein the synthesis segment i comprises at least one overlap region with its adjacent synthesis segment;

determining a reconstructed segment i according to the synthesis segment i by performing a decoding network, wherein the reconstructed segment i has no overlap region with its adjacent reconstructed segment.

2. The method according to claim 1, wherein the obtaining an entropy segment i from a bitstream comprises:

determining a location information corresponding to the entropy segment i according to an input segment corresponding to the entropy segment i, wherein the input segment corresponding to the entropy segment i is one input segment among M input segments, the M input segments constitute the input data, each of the M input segments comprises at least one overlap region with its adjacent input segment, M is a positive integer greater than one;

obtaining the entropy segment i according to the location information corresponding to the entropy segment i from the bitstream.

3. The method according to claim 2, wherein the determining a location information corresponding to the entropy segment i according to an input segment corresponding to the entropy segment i, comprises:

determining a shifted segment i according to the input segment corresponding to the entropy segment i and a size of the overlap region;

determining a shifted latent segment i according to the shifted segment i and an alignment parameter of a synthesis transform in the decoding network;

determining the location information corresponding to the entropy segment i according to the shifted latent segment i and the shifted segment i.

4. The method according to any one of claims 1 to 3, wherein the determining a synthesis segment i according to the entropy segment i and/or at least one entropy segment adjacent to the entropy segment i, comprises:

determining location information of the synthesis segment i according to an alignment parameter of a synthesis transform in the decoding network and an input segment corresponding to the synthesis segment i, wherein the input segment corresponding to the synthesis segment i is one input segment among M input segments, the M input segments constitute the input data, each of the M input segments comprises at least one overlap region with its adjacent input segment;

determining, according to the location information of the synthesis segment i, elements of the synthesis segment i from the entropy segment i and/or at least one entropy segment adjacent to the entropy segment i.

5. The method according to any one of claims 1 to 4, wherein before the obtaining an entropy segment i from a bitstream, the method further comprises:

obtaining a segment flag information from the bitstream, wherein the segment flag information indicates that the bitstream comprises N entropy segments.

6. The method according to any preceding claim, wherein the method further comprises:

obtaining a first context segment i according to the entropy segment i and/or at least one entropy segment adjacent to the entropy segment i, wherein the first context segment is obtained from the bitstream and comprises at least one overlap region with an adjacent first context segment;

obtaining a second context segment i according to the entropy segment and/or at least one entropy segment adjacent to the entropy segment i, wherein the second context segment represents an input prediction segment i corresponding to the entropy segment i and comprises at least one overlap region with an adjacent second context segment;

inputting the first context segment i and the second context segment i to a context model to form the synthesis segment i; and

determining the reconstructed segment i according to the synthesis segment i by inputting the synthesis segment i into the decoding network, wherein the reconstructed segment i has no overlap region with its adjacent reconstructed segment.

7. The method according to claim 6, wherein the first context segment i has the same spatial dimension as the synthesis segment i.

8. The method according to claim 6 or claim 7, wherein the first context segment i and the second context segment i each have the same total numbers of elements.

9. The method according to any one of claims 6 to 8, wherein the input prediction segment is the output of a hyper-decoder of a variational auto encoder model.

10. The method according to any one of claims 6 to 9, wherein the spatial dimension of the second context segment i is a quarter of the spatial dimension of the first context segment i, and wherein the second context segment i has 4 times the number of channels than the first context segment.

11. The method according to any one of claims 6 to 10, wherein the first context segment i represents a residual of the input data in the latent space.

12. The method according to any preceding claim, wherein the at least one overlap region of the synthesis segment is disregarded in the determination of the reconstructed segment.

13. The method according to any preceding claim, wherein the input data is derived from an input image and wherein each reconstructed segment corresponds to a tile of the input image.

14. An encoding method, comprising:

dividing an input data into M input segments, wherein each of the M input segments comprises at least one overlap region with its adjacent input segment, M is a positive integer greater than one;

determining M analysis segments by processing the M input segments using an encoding network, wherein the M analysis segments and the M input segments are in one-to-one correspondence;

determining a representation of the input data in a latent space according to the M analysis segments and the M input segments;

dividing the representation of the input data into N entropy segments, wherein each of the N entropy segments has no overlap region with its adjacent entropy segment, N is a positive integer greater than one;

determining a bitstream by encoding the N entropy segments.

15. The method according to claim 6, wherein the determining a representation of the input data in a latent space according to the M analysis segments, comprises:

determining M core segments according to the M analysis segments and the M input segments, wherein a j^{th} core segments among the M core segments is determined according to a j^{th} analysis segments among the M analysis segments and a j^{th} input segment among the M input

segments, j=1, …, M, each of the M core segments has no overlap region with its adjacent core segments;

determining the representation of the input data by constitute the M core segments.

16. The method according to claim 6 or 7, wherein the dividing the representation of the input data into N entropy segments, comprises:

determining location information of each of the N entropy segments;

dividing, according to location information of the each of the N entropy segments, the representation of the input data into the N entropy segments.

17. The method according to claim 8, wherein the determining location information of each of the N entropy segments, comprises:

determining N shifted segments according to the M input segments;

determining N shifted latent segments according to the N shifted segments and an alignment parameter of an analysis transform in the encoding network;

determining the location information of the each of the N entropy segments according to the N shifted latent segments and the N shifted segments.

18. The method according to any one of claims 6 to 9, wherein the method further comprises:

determining a segment flag information in the bitstream, wherein segment flag information indicates that the bitstream comprises N entropy segments.

19. The method according to any one of claims 14 to 18, wherein the method further comprises:

from the determined representation of the input data in the latent space, determining a latent segment i, i=1, …, M, wherein the latent segment i comprises at least one overlap region with its adjacent latent segment;

obtaining an input prediction segment i according to the latent segment i, the input prediction segment i comprising at least one overlap region with an adjacent input prediction segment;

inputting the latent segment i and the input prediction segment i to a context model to output an output segment i of M output segments, wherein the output segment i has no overlap region with its adjacent output segment;

dividing the M output segments into N entropy segments, wherein each of the N entropy segments has no overlap region with its adjacent entropy segment; and

determining the bitstream by encoding the N entropy segments.

20. The method according to claim 19, wherein the latent segment i has the same spatial dimension as the output segment i.

21. The method according to claim 19 or claim 20, wherein the latent segment i and the input prediction segment i each have the same total numbers of elements.

22. The method according to any one of claims 19 to 21, wherein the input prediction segment is the output of a hyper-decoder of a variational auto encoder model.

23. The method according to any one of claims 19 to 22, wherein the spatial dimension of the input prediction segment i is a quarter of the spatial dimension of the latent segment i, and wherein the input prediction segment i has 4 times the number of channels than the latent segment.

24. The method according to any one of claims 19 to 23, wherein the output segment i represents a residual of the input data in the latent space.

25. The method according to any one of claims 19 to 24, wherein the at least one overlap region of the latent segment is disregarded in the determination of the output segments.

26. The method according to any one of claims 19 to 25, wherein the input data is derived from an input image and wherein each latent segment corresponds to a tile of the input image.

27. An electronic device, comprising:

an obtaining unit, configured to obtain an entropy segment i from a bitstream, wherein the entropy segment i is one entropy segment among N entropy segments, the N entropy segments constitute a representation of an input data in a latent space, the entropy segment i has no overlap region with its adjacent entropy segment, N is a positive integer greater than one, i=1, …, N;

a processing unit, configured to determine a synthesis segment i according to the entropy segment i and/or at least one entropy segment adjacent to the entropy segment i, wherein the synthesis segment i comprises at least one overlap region with its adjacent synthesis segment;

the processing unit, further configured to determine a reconstructed segment i according to the synthesis segment i by performing a decoding network, wherein the reconstructed segment i has no overlap region with its adjacent reconstructed segment.

28. An electronic device, comprising:

a dividing unit, configured to divide an input data into M input segments, wherein each of the M input segments comprises at least one overlap region with its adjacent input segment, M is a positive integer greater than one;

a processing unit configured to determine M analysis segments by processing the M input segments using an encoding network, wherein the M analysis segments and the M input segments are in one-to-one correspondence;

the processing unit, further configured to determine a representation of the input data in a latent space according to the M analysis segments and the M input segments;

the processing unit, further configured to divide the representation of the input data into N entropy segments, wherein each of the N entropy segments has no overlap region with its adjacent entropy segment, N is a positive integer greater than one;

the processing unit, further configured to determine a bitstream by encoding the N entropy segments.

29. A computer readable storage medium, wherein the computer readable storage medium stores instructions, and when the instructions run on an electronic device, the electronic device is enabled to perform the method according to any one of claims 1 to 26.

30. A chip system, comprising a memory and a processor, wherein the memory is configured to store a computer program, and the processor is configured to invoke the computer program from the memory and run the computer program, so that an electronic device on which the chip system is disposed performs the method according to any one of claims 1 to 26.