CLAIMS

What is Claimed:

1. A method for processing a video, the method comprising:

identifying a collocated picture for a current slice of the video, wherein the current slice comprises a current block and a neighboring block of the current block, the neighboring block being associated with a reference picture;

determining a temporal distance between the reference picture of the neighboring block and the collocated picture;

determining a motion vector (MV) for the obtaining a collocated sub-block in the collocated picture based on the temporal distance between the reference picture of the neighboring block and the collocated picture, wherein the MV is a default value based on a condition that the temporal distance indicates that the reference picture differs from the collocated picture;

obtaining the collocated sub-block in the collocated picture based on the MV; and

predicting a sub-block of the current block based on the collocated sub-block in the collocated picture.

2. A video processing device, comprising:

a processor configured to:

identify a collocated picture for a current slice of a video, wherein the current slice comprises a current block and a neighboring block of the current block, the neighboring block being associated with a reference picture;

determine a temporal distance between the reference picture of the neighboring block and the collocated picture;

determine a motion vector (MV) for obtaining a collocated sub-block in the collocated picture based on the temporal distance between the reference picture of the neighboring block and the collocated picture, wherein the MV is a default value on a condition that the temporal distance indicates that the reference picture differs from the collocated picture;

obtain the collocated sub-block in the collocated picture based on the MV; and

predict a sub-block of the current block based on the collocated sub-block in the collocated picture.

3. The method of claim 1 or the video processing device of claim 2, wherein the MV is determined to be an MV of the neighboring block based on a condition that the temporal distance indicates that the reference picture is the same as the collocated picture.

4. The method of claim 1 or the video processing device of claim 2, wherein the reference picture of the neighboring block is associated with a picture order count (POC), and the temporal distance between the reference picture of the neighboring block and the collocated picture is indicated by a POC difference from the collocated picture.

5. The method of claim 1 or the video processing device of claim 2, wherein the collocated picture is identified based on a collocated picture indication in a slice header.

6. The method of claim 1 or the video processing device of claim 2, wherein the neighboring block is one of a plurality of neighboring blocks of the current block, and the neighboring block is selected based on respective temporal distances between respective reference pictures of the neighboring blocks and the collocated picture.

7. The method of claim 1 or the video processing device of claim 2, wherein the neighboring block is one of a plurality of neighboring blocks of the current block, and the neighboring block is selected without considering the other neighboring blocks based on a determination that the reference picture of the neighboring block is the same as the collocated picture.

8. The method of claim 1 or the video processing device of claim 2, wherein the neighboring block is one of a plurality of neighboring blocks of the current block, and a candidate neighboring block is selected based on having a reference picture that is the same as the collocated picture.

9. The method of claim 1 or the video processing device of claim 2, wherein the neighboring block is associated with a spatial MV, and the MV for the current block is a temporal MV.

10. The method of claim 1, wherein the neighboring block is associated with a reference MV, and the method further comprises performing temporal scaling on the reference MV on a condition that the reference picture of the neighboring block differs from the collocated picture.

11. The method of claim 10, wherein performing temporal scaling comprises multiplying the reference MV by a scaling factor, wherein the scaling factor is based on a temporal difference

between the reference picture of the neighboring block and the collocated picture.

12. The method of claim 1, wherein the MV comprises a collocated MV, wherein the collocated MV is associated with a first collocated block of a plurality of collocated blocks within the collocated picture, and the method further comprises:

identifying a valid collocated block region of the collocated picture based on the current slice;

on a condition that the collocated block is not located in the region, selecting a second collocated block that is located within the region; and

replacing the collocated MV with a second collocated MV associated with the second collocated block.

13. The method of claim 12, wherein the second collocated block is selected based on having a lowest distance to the first collocated block.

14. The video processing device of claim 2, wherein the processor is further configured to:

subdivide the current block into one or more sub-blocks, wherein the one or more sub-blocks comprise the sub-block, and each sub-block of the one or more sub-blocks corresponds to a respective reference MV wherein, based on a condition that the temporal distance indicates that the reference picture is the same as the collocated picture, obtain a respective collocated sub-block for a respective collocated sub-block in the collocated picture for each sub-block.

15. The video processing device of claim 14, wherein the processor is further configured to determine a size of the sub-block based on a temporal layer of the current block.