CLAIMS

1. A method for inter-prediction of a current image block in a current picture of a video, the method comprising:

determining whether a first temporal distance is equal to a second temporal distance, wherein the first temporal distance is represented in terms of a difference between a picture order count value of the current picture and a picture order count value of a first reference picture, and the second temporal distance is represented in terms of a difference between a picture order count value of a second reference picture and the picture order count value of the current picture; and

performing a decoder motion vector refinement (DMVR) procedure for the current image block, in response to determining that a plurality of conditions are satisfied, wherein the plurality of conditions comprises:

a value of a flag which signaled at a sequence parameter set level or a picture level, indicating the DMVR procedure is enabled at the picture level; and

the first temporal distance is equal to the second temporal distance;

wherein the performing the DMVR procedure, comprises:

determining positions of a pair of first and second reference blocks, from positions of a plurality of pairs of first and second reference blocks based on a matching cost criterion, wherein the positions of the pair of first and second reference blocks includes a position of a first reference block that is of the first reference picture and that is determined based on a first initial motion vector and a position of a second reference block that is of the second reference picture and that is determined based on a second initial motion vector, wherein the matching cost criterion is based on a cost comparison between the first reference block and the second reference block; wherein a first refined motion vector and a second refined motion vector are associated with the position of the first reference block and the position of the second reference block respectively.

2. The method according to claim 1, further comprising:

performing motion compensation using a first initial motion vector and a second initial motion vector to determine a prediction block of the current image block, in response to determining that the first temporal distance is not equal to the second temporal distance.

3. The method according to claim 2, further comprising:

obtaining initial motion information of the current image block, wherein the initial motion information comprises the first initial motion vector, a first reference index, the second initial motion vector and a second reference index, wherein the first reference index indicates the first reference picture, and the second reference index indicates the second reference picture.

4. A coding device, comprising:

a memory storing instructions; and

a processor coupled to the memory, the processor configured to execute the instructions stored in the memory to cause the processor to:

determine whether a first temporal distance is equal to a second temporal distance, wherein the first temporal distance is represented in terms of a difference between a picture order count value of a current picture and a picture order count value of a first reference picture; and the second temporal distance is represented in terms of a difference between a picture order count value of a second reference picture and the picture order count value of the current picture; and

perform a decoder motion vector refinement (DMVR) procedure for a current image block, in response to determining a plurality of conditions are satisfied, wherein the plurality of conditions comprises:

a value of a flag which signaled at a picture level, indicating the DMVR procedure is enabled at the picture level; and

the first temporal distance is equal to the second temporal distance;

wherein the performing the DMVR procedure, comprises:

determining positions of a pair of first and second reference blocks, from positions of a plurality of pairs of first and second reference blocks based on a matching cost criterion, wherein the positions of the pair of first and second reference blocks includes a position of a first reference block that is of the first reference picture and that is determined based on a first initial motion vector and a position of a second reference block that is of the second reference picture and that is determined based on a second initial motion vector, wherein the matching cost criterion is based on a cost comparison between the first reference block and the second reference block; wherein a first refined motion vector and a second refined motion vector are associated with the position of the first reference block and the position of the second reference block respectively.

5. The coding device according to claim 4, wherein the processor is further configured to:

perform motion compensation using a first initial motion vector and a second initial motion vector to determine a prediction block of the current image block, in response to determining that the first temporal distance is not equal to the second temporal distance.

6. The coding device according to claim 5, wherein the processor is further configured to:

obtain initial motion information of the current image block in the current picture, wherein the initial motion information comprises the first initial motion vector, a first reference index, the second initial motion vector and a second reference index, wherein the first reference index indicates the first reference picture, and the second reference index indicates the second reference picture.

7. The coding device according to claim 4,

wherein the processor is further configured to generate a bitstream including a residual between the current image block and a prediction block, and an index indicating initial motion information, and wherein the coding device is an encoding device.

8. The coding device according to claim 4, wherein the coding device is a decoding apparatus,

wherein the processor is further configured to parse from a bitstream an index indicating an initial motion information and a residual between the current image block and a prediction block of the current image block; and to reconstruct the current image block based on the residual and the prediction block.

9. A non-transitory storage medium comprising an encoded bitstream for a video signal by including a plurality of syntax elements, wherein the plurality of syntax elements comprises a first syntax element, wherein a value of the first syntax element indicates whether a decoder motion vector refinement (DMVR) procedure is enabled or not; and wherein a plurality of operations are performed at least based on the value of the first syntax element, and the operations comprising:

determining whether a first temporal distance is equal to a second temporal distance, wherein the first temporal distance is represented in terms of a difference between a picture order count value of a current picture and a picture order count value of a first reference picture; and the second

temporal distance is represented in terms of a difference between a picture order count value of a second reference picture and the picture order count value of the current picture; and

performing the DMVR procedure for a current image block, in response to determining a plurality of conditions are satisfied, wherein the plurality of conditions comprises:

a value of the first syntax element being a flag which signaled at a picture level, indicating the DMVR procedure is enabled at the picture level; and

the first temporal distance is equal to the second temporal distance;

wherein the performing the DMVR procedure, comprises:

determining positions of a pair of first and second reference blocks, from positions of a plurality of pairs of first and second reference blocks based on a matching cost criterion, wherein the positions of the pair of first and second reference blocks includes a position of a first reference block that is of the first reference picture and that is determined based on a first initial motion vector and a position of a second reference block that is of the second reference picture and that is determined based on a second initial motion vector, wherein the matching cost criterion is based on a cost comparison between the first reference block and the second reference block; wherein a first refined motion vector and a second refined motion vector are associated with the position of the first reference block and the position of the second reference block respectively.

10. A non-transitory computer-readable medium storing instructions, which when executed by a processor, cause the processor to perform operations comprising:

determining whether a first temporal distance is equal to a second temporal distance, wherein the first temporal distance is represented in terms of a difference between a picture order count value of a current picture and a picture order count value of a first reference picture; and the second temporal distance is represented in terms of a difference between a picture order count value of a second reference picture and the picture order count value of the current picture; and

performing a decoder motion vector refinement (DMVR) procedure for a current image block, in response to determining that a plurality of conditions are satisfied, wherein the plurality of conditions comprises:

a value of a flag which signaled at a picture level, indicating the DMVR procedure is enabled at the picture level; and

the first temporal distance is equal to the second temporal distance;

wherein the performing the DMVR procedure, comprises:

determining positions of a pair of first and second reference blocks, from positions of a plurality of pairs of first and second reference blocks based on a matching cost criterion, wherein the positions of the pair of first and second reference blocks includes a position of a first reference block that is of the first reference picture and that is determined based on a first initial motion vector and a position of a second reference block that is of the second reference picture and that is determined based on a second initial motion vector, wherein the matching cost criterion is based on a cost comparison between the first reference block and the second reference block; wherein a first refined motion vector and a second refined motion vector are associated with the position of the first reference block and the position of the second reference block respectively.

11. The non-transitory computer-readable medium according to claim 17, wherein the operations further comprise:

performing motion compensation using a first initial motion vector and a second initial motion vector to determine a prediction block of the current image block, in response to determining that the first temporal distance is not equal to the second temporal distance.

12. The non-transitory computer-readable medium according to claim 11, wherein the operations further comprise:

obtaining initial motion information of the current image block, wherein the initial motion information comprises the first initial motion vector, a first reference index, the second initial motion vector and a second reference index, wherein the first reference index indicates the first reference picture, and the second reference index indicates the second reference picture.