CLAIMS

1. A method of decoding video data, the method comprising:

determining motion vectors for a current block of video data encoded using bi-predicted prediction;

determining that weights used for predictors from two reference picture lists for the bi-predicted prediction of the current block are not equal;

determining to disable a motion vector refinement process for the motion vectors based on determining that the weights used for the predictors from the two reference picture lists for the bi-predicted prediction of the current block are not equal; and

decoding the current block of video data using the bi-predicted prediction without the motion vector refinement process.

2. The method of claim 1, wherein the bi-prediction prediction is weighted bi-prediction.

3. The method of claim 1, wherein the bi-prediction prediction is generalized bi-prediction.

4. The method of claim 1, further comprising:

determining the weights used for predictors from two reference picture lists for the bi-predicted prediction of the current block at a picture level.

5. The method of claim 1, further comprising:

determining the weights used for predictors from two reference picture lists for the bi-predicted prediction of the current block at a block level.

6. The method of claim 1, wherein the motion vector refinement process is bilateral template matching.

7. The method of claim 1, further comprising:

determining motion vectors for a second block of video data encoded using bi-predicted prediction;

determining that weights used for predictors from two reference picture lists for the bi-predicted prediction of the second block are equal;

determining a difference between predicted blocks identified by the motion vectors for the second block;

determining to apply the motion vector refinement process on the motion vectors for the second block based on the weights used for the predictors from the two reference picture lists for the bi-predicted prediction of the second block and the determined difference between the predicted blocks identified by the motion vectors for the second block.

8. The method of claim 1, determining a difference between predicted blocks identified by the motion vectors, wherein determining to disable the motion vector refinement process on the motion vectors based on the weights used for the predictors from the two reference picture lists for the bi-predicted prediction of the current block is further based on the determined difference between the predicted blocks identified by the motion vectors and further comprises:

determining to disable the motion vector refinement process in the case that the difference between the predicted blocks identified by the motion vectors is less than a threshold.

9. The method of claim 7, wherein determining the difference between the predicted blocks identified by the motion vectors for the second block comprises:

determining the difference between the predicted blocks identified by the motion vectors for the second block using a sum of absolute differences between the predicted blocks or a sum of squared error between the predicted blocks.

10. The method of claim 8, further comprising:

determining the threshold based on a number of samples in the predicted blocks and a bitdepth of the samples in the predicted blocks.

11. The method of claim 7, wherein the motion vector refinement process is bilateral template matching.

12. The method of claim 11, wherein applying the bilateral template matching on the motion

vectors for the second block comprises:

determining two predicted blocks for the second block using the bilateral template matching, wherein a first predicted block of the two predicted blocks is determined based on the motion vectors for the second block, wherein the motion vectors for the second block include a non-integer motion vector, and wherein determining the first predicted block comprises:

performing a horizontal interpolation based on the non-integer motion vector;

storing the output of the horizontal interpolation at a higher bitdepth than an internal bitdepth; and

using the output of the horizontal interpolation stored at the higher bitdepth to perform a vertical interpolation.

13. An apparatus configured to decode video data, the apparatus comprising:

a memory configured to store a current block of video data; and

one or more processors implemented in circuitry and in communication with the memory, wherein the one or more processors are configured to:

determine motion vectors for a current block of video data encoded using bi-predicted prediction;

determine that weights used for predictors from two reference picture lists for the bi-predicted prediction of the current block are not equal;

determine to disable a motion vector refinement process for the motion vectors based on the determination that the weights used for the predictors from the two reference picture lists for the bi-predicted prediction of the current block are not equal; and

decode the current block of video data using the bi-predicted prediction without the motion vector refinement process.

14. The apparatus of claim 13, wherein the bi-prediction prediction is weighted bi-prediction.

15. The apparatus of claim 13, wherein the bi-prediction prediction is generalized bi-prediction.

16. The apparatus of claim 13, wherein the one or more processors are further configured to:

determine the weights used for predictors from two reference picture lists for the bi-predicted prediction of the current block at a picture level.

17. The apparatus of claim 13, wherein the one or more processors are further configured to:

determine the weights used for predictors from two reference picture lists for the bi-predicted prediction of the current block at a block level.

18. The apparatus of claim 13, wherein the motion vector refinement process is bilateral template matching.

19. The apparatus of claim 13, wherein the one or more processors are further configured to:

determine motion vectors for a second block of video data encoded using bi-predicted prediction;

determine that weights used for predictors from two reference picture lists for the bi-predicted prediction of the second block are equal;

determine a difference between predicted blocks identified by the motion vectors for the second block;

determine to apply the motion vector refinement process on the motion vectors for the second block based on the weights used for the predictors from the two reference picture lists for the bi-predicted prediction of the second block and the determined difference between the predicted blocks identified by the motion vectors for the second block.

20. The apparatus of claim 13, wherein the one or more processors are further configured to determine a difference between predicted blocks identified by the motion vector, wherein to determine to disable the motion vector refinement process on the motion vectors based on the weights used for the predictors from the two reference picture lists for the bi-predicted prediction of the current block is further based on the determined difference between the predicted blocks identified by the motion vectors, the one or more processors are further configured to:

determine to disable the motion vector refinement process in the case that the difference between the predicted blocks identified by the motion vectors is less than a threshold.

21. The apparatus of claim 19, wherein to determine the difference between the predicted blocks identified by the motion vectors for the second block, the one or more processors are further configured to:

determine the difference between the predicted blocks identified by the motion vectors for the second block using a sum of absolute differences between the predicted blocks or a sum of squared error between the predicted blocks.

22. The apparatus of claim 20, wherein the one or more processors are further configured to:

determine the threshold based on a number of samples in the predicted blocks and a bitdepth of the samples in the predicted blocks.

23. The apparatus of claim 19, wherein the motion vector refinement process is bilateral template matching.

24. The apparatus of claim 23, wherein to apply the bilateral template matching on the motion vectors for the second block, the one or more processors are further configured to:

determine two predicted blocks for the second block using the bilateral template matching, wherein a first predicted block of the two predicted blocks is determined based on the motion vectors for the second block, wherein the motion vectors for the second block include a non-integer motion vector, and wherein to determine the first predicted block, the one or more processors are further configured to:

perform a horizontal interpolation based on the non-integer motion vector;

store the output of the horizontal interpolation at a higher bitdepth than an internal bitdepth; and

use the output of the horizontal interpolation stored at the higher bitdepth to perform a vertical interpolation.

25. The apparatus of claim 13, wherein the apparatus is a wireless communication device.

26. A non-transitory computer-readable storage medium storing instructions that, when executed, cause one or more processors configured to decode video data to:

determine motion vectors for a current block of video data encoded using bi-predicted prediction;

determine that weights used for predictors from two reference picture lists for the bi-predicted prediction of the current block are not equal;

determine to disable a motion vector refinement process for the motion vectors based on the determination that the weights used for the predictors from the two reference picture lists for the bi-predicted prediction of the current block are not equal; and

decode the current block of video data using the bi-predicted prediction without the motion vector refinement process.