CLAIMS

1. A method of processing video data, comprising:

determining that a coding mode using optical flow is enabled for a current video block of a video;

deriving, with a padding operation instead of a first interpolating filtering operation, one or more outer samples for the current video block;

performing, a second interpolation filtering operation for the current video block; and

performing, based on the padding operation and the second interpolation filtering operation, a conversion between the current video block and a bitstream of the video,

wherein a size of the current video block is M×N, wherein a first number of samples required by a gradient calculation is (M+G)×(N+G), and an interpolation filter used in the second interpolation filtering operation for a luma component of the current video block comprises L taps, and

wherein a third number of samples required by the second interpolation filtering operation with enabling the coding mode using optical flow is (M+ k +L−1)×(N+ k +L−1), wherein M, N, G, and L are positive integers, and wherein k is an integer less than G.

2. The method of claim 1, wherein a bi-linear filter is used in the first interpolation filtering operation.

3. The method of claim 1, wherein only an 8-tap interpolation filter is used in the second interpolation filtering operation for a luma component of the current video block.

4. The method of claim 1, wherein a second number of samples required by the second interpolation filtering operation without enabling the coding mode using optical flow is (M+L−1)×(N+L−1).

5. The method of claim 4, wherein a fourth number of samples that comprise a difference between the second number of samples and the third number of samples are padded in the padding operation.

6. The method of claim 4, wherein L = 8 and G = 2.

7. The method of claim 4, wherein k = 0.

8. The method of claim 4, wherein M is equal to 8 or 16, and N is equal to 8 or 16.

9. The method of claim 1, wherein the coding mode using optical flow comprises a bi-directional optical flow (BDOF) prediction mode.

10. The method of claim 1, wherein the conversion includes decoding the current video block from the bitstream.

11. The method of claim 1, wherein the conversion includes encoding the current video block into the bitstream.

12. The method of claim 1, wherein the one or more outer samples include a top and a bottom row, a left and a right column of a prediction sample region corresponding to the current video block, and wherein the prediction sample region has a size (M+G)×(N+G).

13. An apparatus for processing video data comprising a processor and a non-transitory memory with instructions thereon, wherein the instructions upon execution by the processor, cause the processor to:

determine that a coding mode using optical flow is enabled for a current video block of a video;

derive, with a padding operation instead of a first interpolating filtering operation, one or more outer samples for the current video block;

perform, a second interpolation filtering operation for the current video block; and

perform, based on the padding operation and the second interpolation filtering operation, a conversion between the current video block and a bitstream of the video,

wherein a size of the current video block is M×N, wherein a first number of samples required by a gradient calculation is (M+G)×(N+G), and an interpolation filter used in the second interpolation filtering operation for a luma component of the current video block comprises L taps, and

wherein a third number of samples required by the second interpolation filtering operation with enabling the coding mode using optical flow is (M+ k +L−1)×(N+ k +L−1), wherein M, N, G, and L are positive integers, and wherein k is an integer less than G.

14. The apparatus of claim 13, wherein a bi-linear filter is used in the first interpolation filtering operation.

15. The apparatus of claim 13, wherein only an 8-tap interpolation filter is used in the second interpolation filtering operation for a luma component of the current video block.

16. The apparatus of claim 13, wherein a second number of samples required by the second interpolation filtering operation without enabling the coding mode using optical flow is (M+L−1)×(N+L−1).

17. The apparatus of claim 16, wherein a fourth number of samples that comprise a difference between the second number of samples and the third number of samples are padded in the padding operation.

18. The apparatus of claim 16, wherein L = 8, k=0 and G = 2.

19. The apparatus of claim 13, wherein the coding mode using optical flow comprises a bi-directional optical flow (BDOF) prediction mode.

20. A non-transitory computer-readable storage medium storing instructions that cause a processor to:

determine that a coding mode using optical flow is enabled for a current video block of a video;

derive, with a padding operation instead of a first interpolating filtering operation, one or more outer samples for the current video block;

perform, a second interpolation filtering operation for the current video block; and

perform, based on the padding operation and the second interpolation filtering operation, a conversion between the current video block and a bitstream of the video,

wherein a size of the current video block is M×N, wherein a first number of samples required by a gradient calculation is (M+G)×(N+G), and an interpolation filter used in the second

interpolation filtering operation for a luma component of the current video block comprises L taps, and

wherein a third number of samples required by the second interpolation filtering operation with enabling the coding mode using optical flow is (M+ k +L−1)×(N+ k +L−1), wherein M, N, G, and L are positive integers, and wherein k is an integer less than G.

21. A non-transitory computer-readable recording medium storing a bitstream which is generated by a method performed by a video processing apparatus, wherein the method comprises:

determining that a coding mode using optical flow is enabled for a current video block of a video;

deriving, with a padding operation instead of a first interpolating filtering operation, one or more outer samples for the current video block;

performing, a second interpolation filtering operation for the current video block; and

generating the bitstream from the current video block based on the padding operation and the second interpolation filtering operation,

wherein a size of the current video block is M×N, wherein a first number of samples required by a gradient calculation is (M+G)×(N+G), and an interpolation filter used in the second interpolation filtering operation for a luma component of the current video block comprises L taps, and

wherein a third number of samples required by the second interpolation filtering operation with enabling the coding mode using optical flow is (M+ k +L−1)×(N+ k +L−1), wherein M, N, G, and L are positive integers, and wherein k is an integer less than G.

~~1. A method of processing video data, comprising:~~

~~determining that a coding mode using optical flow is enabled for a current video block of a video;~~

~~deriving, with a padding operation instead of a first interpolating filtering operation, one or more outer samples of the current video block;~~

~~performing, a second interpolation filtering operation for the current video block; and~~

~~performing, based on the padding operation and the second interpolation filtering operation, a conversion between the current video block and a bitstream representation of the video.~~

~~2. The method of claim 1, wherein a bi-linear filter is used in the first interpolation filtering operation.~~

~~3. The method of claim 1 or 2, wherein only an 8-tap interpolation filter is used in the second interpolation filtering operation for a luma component of the current video block.~~

~~4. The method of any of claims 1 to 3, wherein a size of the current video block is M×N, wherein a first number of samples required by a gradient calculation is (M+G)×(N+G), wherein an interpolation filter used in the second interpolation filtering operation for a luma component of the current video block comprises L taps, wherein a second number of samples required by the second interpolation filtering operation without enabling the coding mode using optical flow is (M+G+L−1)×(N+G+L−1), wherein a third number of samples required by the second interpolation filtering operation with enabling the coding mode using optical flow is (M+ k +L−1)×(N+ k +L−1), wherein M, N, G, and L are positive integers, and wherein k is an integer less than G.~~

~~5. The method of claim 4, wherein a fourth number of samples that comprise a difference between the second number of samples and the third number of samples are padded in the padding operation.~~

~~6. The method of claim 4 or 5, wherein L = 8 and G = 2.~~

~~7. The method of any of claims 4 to 6, wherein k = 0.~~

~~8. The method of any of claims 4 to 7, wherein M is equal to 8 or 16, and N is equal to 8 or 16.~~

~~9. The method of any of claims 1 to 8, wherein the coding mode using optical flow comprises a bi-directional optical flow (BDOF) prediction mode.~~

~~10. The method of any of claims 1 to 9, wherein the conversion includes encoding the current video block into the bitstream.~~

~~11. The method of any of claims 1 to 9, wherein the conversion includes decoding the current video block from the bitstream.~~

12. An apparatus for processing video data comprising a processor and a non-transitory memory with instructions thereon, wherein the instructions upon execution by the processor, cause the processor to:

determine that a coding mode using optical flow is enabled for a current video block of a video;

derive, with a padding operation instead of a first interpolating filtering operation, one or more outer samples of the current video block;

perform, a second interpolation filtering operation for the current video block; and

perform, based on the padding operation and the second interpolation filtering operation, a conversion between the current video block and a bitstream of the video.

13. The apparatus of claim 12, wherein a bi-linear filter is used in the first interpolation filtering operation.

14. The apparatus of claim 12 or 13, wherein only an 8-tap interpolation filter is used in the second interpolation filtering operation for a luma component of the current video block.

15. The apparatus of any of claims 12 to 14, wherein a size of the current video block is M×N, wherein a first number of samples required by a gradient calculation is (M+G)×(N+G), wherein an interpolation filter used in the second interpolation filtering operation for a luma component of the current video block comprises L taps, wherein a second number of samples required by the second interpolation filtering operation without enabling the coding mode using optical flow is (M+G+L−1)×(N+G+L−1), wherein a third number of samples required by the second interpolation filtering operation with enabling the coding mode using optical flow is (M+ k +L−1)×(N+ k +L−1), wherein M, N, G, and L are positive integers, and wherein k is an integer less than G.

16. The apparatus of claim 15, wherein a fourth number of samples that comprise a difference between the second number of samples and the third number of samples are padded in the padding operation.

17. The apparatus of claim 15 or 16, wherein L = 8, k=0 and G = 2.

18. The apparatus of any of claims 12 to 17, wherein the coding mode using optical flow comprises a bi-directional optical flow (BDOF) prediction mode.

19. A non-transitory computer-readable storage medium storing instructions that cause a processor to:

determine that a coding mode using optical flow is enabled for a current video block of a video;

derive, with a padding operation instead of a first interpolating filtering operation, one or more outer samples of the current video block;

perform, a second interpolation filtering operation for the current video block; and

perform, based on the padding operation and the second interpolation filtering operation, a conversion between the current video block and a bitstream of the video.

20. A non-transitory computer-readable recording medium storing a bitstream of a video which is generated by a method performed by a video processing apparatus, wherein the method comprises:

determining that a coding mode using optical flow is enabled for a current video block of a video;

deriving, with a padding operation instead of a first interpolating filtering operation, one or more outer samples of the current video block;

performing, a second interpolation filtering operation for the current video block; and

generating the bitstream from the current video block based on the padding operation and the second interpolation filtering operation.