CLAIMS

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

determining a first size for a first block of video data, wherein the first block of video data comprises a first rectangular, non-square block;

determining a first intra prediction mode for the first block of video data;

locating, in a first neighboring block of the first block of video data, first reference samples corresponding to the determined first intra prediction mode;

in response to the first intra prediction mode for the first block of video data being a first wide-angle intra prediction mode and having an intra mode index that corresponds to a diagonal direction of the first block, filtering the first reference samples to determine filtered reference samples, wherein the first wide-angle intra prediction mode comprises a first intra prediction mode with a prediction angle of less the -135 degrees or greater than 45 degrees;

generating a first predictive block for the first block of video data from the filtered reference samples;

determining decoded version of the first block of video data from the first predictive block;

determining a second size for a second block of video data, wherein the second block of video data comprises a second rectangular, non-square block;

determining a second intra prediction mode for the second block of video data;

locating, in a second neighboring block of the second block of video data, second reference samples corresponding to the determined second intra prediction mode;

in response to the second intra prediction mode for the second block of video data being a second wide-angle intra prediction mode and having an intra mode index that corresponds to a non-diagonal direction of the second block, generating a second predictive block for the second block of video data from unfiltered reference samples of the neighboring block, wherein the first wide-angle intra prediction mode is different than the second wide-angle intra prediction mode and the second wide-angle intra prediction mode comprises a second intra prediction mode with a prediction angle of less than -135 degrees or greater than 45 degrees and;

determining decoded version of the second block of video data from the second predictive block; and

outputting the decoded version of the first block of video data and the decoded version of the second block of video data.

2. The method of claim 1, wherein the first reference samples comprise non-fractional reference samples.

3. The method of claim 1, wherein the first reference samples comprise samples determined without interpolation filtering.

4. The method of claim 1, wherein filtering the first reference samples to determine filtered reference samples comprises applying a smoothing filter to the first reference samples.

5. The method of claim 4, wherein the smoothing filter comprises a 3-tap filter.

6. The method of claim 4, wherein applying the smoothing filter to the first reference samples comprises applying the smoothing filtering before or without applying an interpolation filter to the first reference samples.

7. The method of claim 4, wherein applying the smoothing filter to the first reference samples comprises applying a smoothing interpolation filter to the first reference samples.

8. The method of claim 1, wherein determining the first size for the first block of video data comprises determining a size index based on a height of the first block and a width of the first block.

9. The method of claim 8, further comprising:

determining a threshold value based on the size index;

determining an intra mode difference value based on a difference between the intra mode index for the first intra prediction mode and a horizontal index value and a difference between the intra mode index for the first intra prediction mode and a vertical index value;

in response to the intra mode difference value being greater than the threshold value, filtering the first reference samples to determine the filtered reference samples.

10. The method of claim 9, wherein determining the intra mode difference value comprises determining the intra mode difference value to be equal to:

min(abs(IntraModeIdx - HOR_IDX), abs(IntraModeIdx – VER_IDX)), wherein IntraModeIdx is the intra mode index for the first intra prediction mode, HOR_IDX is the horizontal index value, and VER_IDX is the vertical index value.

11. The method of claim 9, the method further comprising:

in response to determining that the size index is less than or equal to 2, determining that the threshold value is equal to 16.

12. The method of claim 8, wherein determining the size index based on the height of the first block and the width of the first block comprises determining the size index to be equal to (log2(BlockWidth) + log2(BlockHeight)) / 2, wherein BlockWidth is the width of the first block and BlockHeight is the height of the first block.

13. The method of claim 1, wherein the method of decoding is performed as part of an encoding process and wherein outputting the decoded version of the first block of video data and the decoded version of the second block of video data comprises storing the decoded version of the first block of video data as part of a first reference picture and storing the decoded version of the second block of video data as part of a second reference picture.

14. A device for decoding video data, the device comprising:

a memory for storing video data; and

one or more processors configured to:

determine a first size for a first block of video data, wherein the first block of video data comprises a first rectangular, non-square block;

determine a first intra prediction mode for the first block of video data;

locate, in a first neighboring block of the first block of video data, first reference samples corresponding to the determined first intra prediction mode;

in response to the first intra prediction mode for the first block of video data being a first wide-angle intra prediction mode and having an intra mode index that corresponds to a diagonal direction of the first block, filter the first reference samples to determine filtered reference samples, wherein the first wide-angle intra prediction mode comprises a first intra prediction mode with a prediction angle of less than -135 degrees or greater than 45 degrees;

generate a first predictive block for the first block of video data from the filtered reference samples;

determine decoded version of the first block of video data from the first predictive block;

determine a second size for a second block of video data, wherein the second block of video data comprises a second rectangular, non-square block;

determine a second intra prediction mode for the second block of video data;

locate, in a second neighboring block of the second block of video data, second reference samples corresponding to the determined second intra prediction mode;

in response to the second intra prediction mode for the second block of video data being a second wide-angle intra prediction mode and having an intra mode index that corresponds to a non-diagonal direction of the second block, generate a second predictive block for the second block of video data from unfiltered reference samples of the neighboring block, wherein the first wide-angle intra prediction mode is different than the second wide-angle intra prediction mode and the second wide-angle intra prediction mode comprises a second intra prediction mode with a prediction angle of less than -135 degrees or greater than 45 degrees and;

determine decoded version of the second block of video data from the second predictive block; and

output the decoded version of the first block of video data and the decoded version of the second block of video data.

15. The device of claim 14, wherein the first reference samples comprise non-fractional reference samples.

16. The device of claim 14, wherein the first reference samples comprise samples determined without interpolation filtering.

17. The device of claim 14, wherein to filter the first reference samples to determine filtered reference samples, the one more processors are further configured to apply a smoothing filter to the first reference samples.

18. The device of claim 17, wherein the smoothing filter comprises a 3-tap filter.

19. The device of claim 17, wherein to apply the smoothing filter to the first reference samples, the one more processors are further configured to apply the smoothing filtering before or without applying an interpolation filter to the first reference samples.

20. The device of claim 17, wherein to apply the smoothing filter to the first reference samples, the one more processors are further configured to apply a smoothing interpolation filter to the first reference samples.

21. The device of claim 14, wherein to determine the first size for the first block of video data, the one more processors are further configured to determine a size index based on a height of the first block and a width of the first block.

22. The device of claim 21, wherein the one more processors are further configured to:

determine a threshold value based on the size index;

determine an intra mode difference value based on a difference between the intra mode index for the first intra prediction mode and a horizontal index value and a difference between the intra mode index for the first intra prediction mode and a vertical index value;

in response to the intra mode difference value being greater than the threshold value, filter the first reference samples to determine the filtered reference samples.

23. The device of claim 22, wherein to determine the intra mode difference value, the one more processors are further configured to determine the intra mode difference value to be equal to:

min(abs(IntraModeIdx - HOR_IDX), abs(IntraModeIdx – VER_IDX)), wherein IntraModeIdx is the intra mode index for the intra prediction mode, HOR_IDX is the horizontal index value, and VER_IDX is the vertical index value.

24. The device of claim 22, wherein the one more processors are further configured to:

in response to determining that the size index is less than or equal to 2, determine that the threshold value is equal to 16.

25. The device of claim 21, wherein to determine the size index based on the height of the first block and the width of the first block, the one more processors are further configured to

determine the size index to be equal to (log2(BlockWidth) + log2(BlockHeight)) / 2, wherein BlockWidth is the width of the first block and BlockHeight is the height of the first block.

26. The device of claim 14, wherein the one or more processors are configured to decode the video data as part of an encoding process and wherein to output the decoded version of the first block of video data and the decoded version of the second block of video data, the one or more processors are further configured to store the decoded version of the first block of video data as part of a first reference picture and storing the decoded version of the second block of video data as part of a second reference picture.

27. A non-transitory computer-readable storage medium storing instructions that when executed by one or more processors cause the one or more processor to:

determine a first size for a first block of video data, wherein the first block of video data comprises a first rectangular, non-square block;

determine a first intra prediction mode for the first block of video data;

locate, in a first neighboring block of the first block of video data, first reference samples corresponding to the determined first intra prediction mode;

in response to the first intra prediction mode for the first block of video data being a first wide-angle intra prediction mode and having an intra mode index that corresponds to a diagonal direction of the first block, filter the first reference samples to determine filtered reference samples, wherein the first wide-angle intra prediction mode comprises a first intra prediction mode with a prediction angle of less than -135 degrees or greater than 45 degrees;

generate a first predictive block for the first block of video data from the filtered reference samples;

determine decoded version of the first block of video data from the first predictive block;

determine a second size for a second block of video data, wherein the second block of video data comprises a second rectangular, non-square block;

determine a second intra prediction mode for the second block of video data;

locate, in a second neighboring block of the second block of video data, second reference samples corresponding to the determined second intra prediction mode;

in response to the second intra prediction mode for the second block of video data being a second wide-angle intra prediction mode and having an intra mode index that corresponds to a non-diagonal direction of the second block, generate a second predictive

block for the second block of video data from unfiltered reference samples of the neighboring block, wherein the first wide-angle intra prediction mode is different than the second wide-angle intra prediction mode and the second wide-angle intra prediction mode comprises a second intra prediction mode with a prediction angle of less than -135 degrees or greater than 45 degrees and;

determine decoded version of the second block of video data from the second predictive block; and

output the decoded version of the first block of video data and the decoded version of the second block of video data.

28. The non-transitory computer-readable storage medium of claim 27, wherein the first reference samples comprise non-fractional reference samples.

29. The non-transitory computer-readable storage medium of claim 27, wherein the first reference samples comprise samples determined without interpolation filtering.

30. The non-transitory computer-readable storage medium of claim 27, wherein to filter the first reference samples to determine filtered reference samples, the instructions cause the one more processors to apply a smoothing filter to the first reference samples.

31. The non-transitory computer-readable storage medium of claim 30, wherein the smoothing filter comprises a 3-tap filter.

32. The non-transitory computer-readable storage medium of claim 30, wherein to apply the smoothing filter to the first reference samples, the instructions cause the one more processors to apply the smoothing filtering before or without applying an interpolation filter to the first reference samples.

33. The non-transitory computer-readable storage medium of claim 30, wherein to apply the smoothing filter to the first reference samples, the instructions cause the one more processors to apply a smoothing interpolation filter to the first reference samples.

34. The non-transitory computer-readable storage medium of claim 27, wherein to determine the size for the first block of video data, the instructions cause the one more processors to determine a size index based on a height of the first block and a width of the first block.

35. The non-transitory computer-readable storage medium of claim 34, storing further instructions that when executed cause the one more processors to:

determine a threshold value based on the size index;

determine an intra mode difference value based on a difference between the intra mode index for the first intra prediction mode and a horizontal index value and a difference between the intra mode index for the first intra prediction mode and a vertical index value;

in response to the intra mode difference value being greater than the threshold value, filter the first reference samples to determine the filtered reference samples.

36. The non-transitory computer-readable storage medium of claim 35, wherein to determine the intra mode difference value, the instructions cause the one more processors to determine the intra mode difference value to be equal to:

min(abs(IntraModeIdx - HOR_IDX), abs(IntraModeIdx – VER_IDX)), wherein IntraModeIdx is the intra mode index for the first intra prediction mode, HOR_IDX is the horizontal index value, and VER_IDX is the vertical index value.

37. The non-transitory computer-readable storage medium of claim 35, storing further instructions that when executed cause the one or more processors to:

in response to determining that the size index is less than or equal to 2, determine that the threshold value is equal to 16.

38. The non-transitory computer-readable storage medium of claim 34, wherein to determine the size index based on the height of the first block and the width of the first block, the instructions cause the one more processors to determine the size index to be equal to (log2(BlockWidth) + log2(BlockHeight)) / 2, wherein BlockWidth is the width of the first block and BlockHeight is the height of the first block.

39. The non-transitory computer-readable storage medium of claim 27, wherein the instructions cause the one or more processors to decode the video data as part of an encoding

process and wherein to output the decoded version of the first block of video data and the decoded version of the second block of video data, the one more processors are further configured to store the decoded version of the first block of video data as part of a data and the decoded version of the second block of video data reference picture and store the decoded version of the second block of video data as part of a second reference picture.

40. An apparatus for decoding video data, the apparatus comprising:

means for determining a first size for a first block of video data, wherein the first block of video data comprises a first rectangular, non-square block;

means for determining a first intra prediction mode for the first block of video data;

means for locating, in a first neighboring block of the first block of video data, first reference samples corresponding to the determined first intra prediction mode;

means for filtering the first reference samples to determine filtered reference samples in response to the first intra prediction mode for the first block of video data being a first wide-angle intra prediction mode and having an intra mode index that corresponds to a diagonal direction of the first block, wherein the first wide-angle intra prediction mode comprises a first intra prediction mode with a prediction angle of less than -135 degrees or greater than 45 degrees;

means for generating a first predictive block for the first block of video data from the filtered reference samples;

means for determining decoded version of the first block of video data from the first predictive block;

means for determining a second size for a second block of video data, wherein the second block of video data comprises a second rectangular, non-square block;

means for determining a second intra prediction mode for the second block of video data;

means for locating, in a second neighboring block of the second block of video data, second reference samples corresponding to the determined second intra prediction mode;

means for generating a second predictive block for the second block of video data from unfiltered reference samples of the neighboring block in response to the second intra prediction mode for the second block of video data being a second wide-angle intra prediction mode and having an intra mode index that corresponds to a non-diagonal direction of the second block, wherein the first wide-angle intra prediction mode is different than the second wide-angle intra prediction mode and the second wide-angle intra prediction mode

comprises a second intra prediction mode with a prediction angle of less than -135 degrees or greater than 45 degrees and;

means for determining decoded version of the second block of video data from the second predictive block; and

means for outputting the decoded version of the first block of video data and the decoded version of the second block of video data.

41. The method of claim 1, wherein the first intra prediction mode has a prediction angle of greater than -180 degrees and less than -135-degrees or a predication angle of greater than 45-degrees an less than 90 degrees and the second intra prediction mode has a prediction angle of greater than -180 degrees and less than -135-degrees or a prediction angle of greater than 45-degrees an less than 90 degrees.

42. The device of claim 14, wherein the first intra prediction mode has a prediction angle of greater than -180 degrees and less than -135-degrees or a prediction angle of greater than 45-degrees an less than 90 degrees and the second intra prediction mode has a prediction angle of greater than -180 degrees and less than -135-degrees or a prediction angle of greater than 45-degrees an less than 90 degrees.