CLAIMS

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

generating a predictor block using an intra prediction mode, wherein generating the predictor block comprises:

for each respective sample in a set of samples in the predictor block:

determining, based on a distance between the respective sample and a first boundary of the predictor block, a value of a first weight for the respective sample;

determining, based on a distance between the respective sample and a second boundary of the predictor block, a value of a second weight for the respective sample;

determining a value of a third weight for the respective sample based on the value of the first weight for the respective sample and the value of the second weight for the respective sample;

determining a primary value for the respective sample according to the intra prediction mode; and

determining a secondary value for the respective sample as a first value for the respective sample right-shifted by a second value, the first value for the respective sample being based on (i) the value of the first weight for the respective sample, multiplied by a left reference sample for the respective sample that is left of the respective sample, (ii) the value of the second weight for the respective sample multiplied by an above reference sample for the respective sample that is above the respective sample, (iii) the value of the third weight for the respective sample multiplied by the primary value for the respective sample, and (iv) an offset value,

wherein each respective sample in the predictor block is based on the primary value for the respective sample and the secondary value for the respective sample; and

reconstructing, based on the predictor block and residual data, a decoded block of the video data.

2. The method of claim 1, wherein, for each respective sample in the set of samples in the predictor block, determining the primary value for the respective sample comprises determining the primary value for the respective sample based on reference samples of the predictor block, the reference samples including the left reference sample for the respective sample and the above reference sample for the respective sample.

3. The method of claim 2, wherein the reference samples of the predictor block are filtered reference samples and the method further comprises:

generating the filtered reference samples of the predictor block by applying a filter to initial reference samples of the predictor block.

4. The method of claim 1, wherein, for each respective sample in the set of samples in the predictor block:

determining the value of the first weight for the respective sample comprises determining the value of the first weight for the respective sample by performing a shift operation on an initial value of the first weight by an amount based on the distance between the respective sample and the first boundary of the predictor block; and

determining the value of the second weight comprises determining the value of the second weight for the respective sample by performing the shift operation on an initial value of the second weight by an amount based on the distance between the respective sample and the second boundary of the predictor block.

5. The method of claim 1, wherein:

the method further comprises determining a value of a fourth weight for the respective sample,

for each respective sample in the set of samples in the predictor block, the value of the third weight for the respective sample is equal to (64 - *wT* - *wL* - *wTL*), where *wT* is the value of the second weight for the respective sample, *wL* is the value of the first weight for the respective sample, and *wTL* is the value of the fourth weight for the respective sample, the offset value is equal to 32, and the second value is equal to 6, and

the first value for the respective sample is further based on the fourth weight for the respective sample multiplied by an above-left reference sample for the respective sample that is above

and left of the respective sample.

6. The method of claim 1, wherein:

the method further comprises determining a value of a fourth weight for the respective sample as ($wL >> 4$) + ($wT >> 4$), where wL is the value of the first weight for the respective sample, wT is the value of the second weight for the respective sample, and >> is a right-shift operation, and

the first value for the respective sample is further based on the fourth weight for the respective sample multiplied by an above-left reference sample for the respective sample that is above and left of the respective sample.

7. The method of claim 1, further comprising, for each respective sample in the set of samples in the predictor block:

determining the value of a fourth weight for the respective sample as a sum of a first parameter multiplied by the value of the first weight for the respective sample plus a second parameter multiplied by the value of the second weight for the respective sample, and

the first value for the respective sample is further based on the fourth weight for the respective sample multiplied by an above-left reference sample for the respective sample that is above and left of the respective sample.

8. The method of claim 7, further comprising:

determining, based on an intra prediction direction, the values of the first parameter and the second parameter,

obtaining values of the first parameter and the second parameter from a bitstream that comprises an encoded representation of the video data, or

determining the values of the first parameter and the second parameter based on an intra prediction angle difference or an intra mode index difference relative to a horizontal and/or a vertical prediction direction.

9. The method of claim 1, wherein the intra prediction mode is a DC intra prediction mode, a horizontal intra prediction mode, or a vertical intra prediction mode.

10. A method of encoding video data, the method comprising:

generating a predictor block using an intra prediction mode, wherein generating the predictor block comprises:

for each respective sample in a set of samples in the predictor block:

determining, based on a distance between the respective sample and a first boundary of the predictor block, a value of a first weight for the respective sample;

determining, based on a distance between the respective sample and a second boundary of the predictor block, a value of a second weight for the respective sample;

determining a value of a third weight for the respective sample based on the value of the first weight for the respective sample and the value of the second weight for the respective sample;

determining a primary value for the respective sample according to the intra prediction mode; and

determining a secondary value for the respective sample as a first value for the respective sample right-shifted by a second value, the first value for the respective sample being based on (i) the value of the first weight for the respective sample, multiplied by a left reference sample for the respective sample that is left of the respective sample, (ii) the value of the second weight for the respective sample multiplied by an above reference sample for the respective sample that is above the respective sample, (iii) the value of the third weight for the respective sample multiplied by the primary value for the respective sample, and (iv) an offset value,

wherein each respective sample in the predictor block is based on the primary value for the respective sample and the secondary value for the respective sample; and

generating residual data based on the predictor block and a coding block of the video data.

11. The method of claim 10, wherein, for each respective sample in the set of samples in the predictor block:

determining the value of the first weight for the respective sample comprises determining the value of the first weight for the respective sample by performing a shift operation on an initial value of the first weight by an amount based on the distance between the respective sample and the first boundary of the predictor block; and

determining the value of the second weight comprises determining the value of the second weight for the respective sample by performing the shift operation on an initial value of the second weight by an amount based on the distance between the respective sample and the second boundary of the predictor block.

12. The method of claim 10, wherein:

the method further comprises determining a value of a fourth weight for the respective sample as ($wL >> 4$) + ($wT >> 4$), where wL is the value of the first weight for the respective sample, wT is the value of the second weight for the respective sample, and >> is a right-shift operation, and

the first value for the respective sample is further based on the fourth weight for the respective sample multiplied by an above-left reference sample for the respective sample that is above and left of the respective sample.

13. The method of claim 10, further comprising, for each respective sample in the set of samples in the predictor block:

determining the value of a fourth weight for the respective sample as a sum of a first parameter multiplied by the value of the first weight for the respective sample plus a second parameter multiplied by the value of the second weight for the respective sample, and

the first value for the respective sample is further based on the fourth weight for the respective sample multiplied by an above-left reference sample for the respective sample that is above and left of the respective sample.

14. The method of claim 10, wherein the intra prediction mode is a DC intra prediction mode, a horizontal intra prediction mode, or a vertical intra prediction mode.

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

one or more storage media configured to store the video data; and

one or more processors configured to:

generate a predictor block using an intra prediction mode, wherein the one or more processors are configured such that, as part of generating the predictor block, the one or more processors:

for each respective sample in a set of samples in the predictor block:

determine, based on a distance between the respective sample and a first boundary of the predictor block, a value of a first weight for the respective sample;

determine, based on a distance between the respective sample and a second boundary of the predictor block, a value of a second weight for the respective sample;

determine a value of a third weight for the respective sample based on the value of the first weight for the respective sample and the value of the second weight for the respective sample;

determine a primary value for the respective sample according to the intra prediction mode; and

determine a secondary value for the respective sample as a first value for the respective sample right-shifted by a second value, the first value for the respective sample being based on (i) the value of the first weight for the respective sample, multiplied by a left reference sample for the respective sample that is left of the respective sample, (ii) the value of the second weight for the respective sample multiplied by an above reference sample for the respective sample that is above the respective sample, (iii) the value of the third weight for the respective sample multiplied by the primary value for the respective sample, and (iv) an offset value,

wherein each respective sample in the predictor block is based on the primary value for the respective sample and the secondary value for the respective sample; and

reconstruct, based on the predictor block and residual data, a decoded block of the video

data.

16. The apparatus of claim 15, wherein, for each respective sample in the set of samples in the predictor block, the one or more processors are configured to determine the primary value for the respective sample based on reference samples of the predictor block, the reference samples including the left reference sample for the respective sample and the above reference sample for the respective sample.

17. The apparatus of claim 16, wherein the reference samples of the predictor block are filtered reference samples and the one or more processors are configured to generate the filtered reference samples of the predictor block by applying a filter to initial reference samples of the predictor block.

18. The apparatus of claim 15, wherein, for each respective sample in the set of samples in the predictor block, the one or more processors are configured to:

determine the value of the first weight for the respective sample by performing a shift operation on an initial value of the first weight by an amount based on the distance between the respective sample and the first boundary of the predictor block; and

determine the value of the second weight for the respective sample by performing the shift operation on an initial value of the second weight by an amount based on the distance between the respective sample and the second boundary of the predictor block.

19. The apparatus of claim 15, wherein:

the one or more processors are further configured to determine a value of a fourth weight for the respective sample, and

for each respective sample in the set of samples in the predictor block, the value of the third weight for the respective sample is equal to (64 - *wT* - *wL* - *wTL*), where *wT* is the value of the second weight for the respective sample, *wL* is the value of the first weight for the respective sample, and *wTL* is the value of the fourth weight for the respective sample, the offset value is equal to 32, and the second value is equal to 6, and

the first value for the respective sample is further based on the fourth weight for the respective

sample multiplied by an above-left reference sample for the respective sample that is above and left of the respective sample.

20. The apparatus of claim 15, wherein:

the one or more processors are further configured to determine a value of a fourth weight for the respective sample as ($wL >> 4$) + ($wT >> 4$), where wL is the value of the first weight for the respective sample, wT is the value of the second weight for the respective sample, and >> is a right-shift operation, and

the first value for the respective sample is further based on the fourth weight for the respective sample multiplied by an above-left reference sample for the respective sample that is above and left of the respective sample.

21. The apparatus of claim 15, wherein, for each respective sample in the set of samples in the predictor block, the one or more processors are configured to determine the value of a fourth weight for the respective sample as a sum of a first parameter multiplied by the value of the first weight for the respective sample plus a second parameter multiplied by the value of the second weight for the respective sample, and

the first value for the respective sample is further based on the fourth weight for the respective sample multiplied by an above-left reference sample for the respective sample that is above and left of the respective sample.

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

determine, based on an intra prediction direction, the values of the first parameter and the second parameter,

obtain values of the first parameter and the second parameter from a bitstream that comprises an encoded representation of the video data, or

determine the values of the first parameter and the second parameter based on an intra prediction angle difference or an intra mode index difference relative to a horizontal and/or a vertical prediction direction.

23. The apparatus of claim 15, wherein the intra prediction mode is a DC intra prediction mode,

a horizontal intra prediction mode, or a vertical intra prediction mode.

24. The apparatus of claim 23, wherein the apparatus comprises:
an integrated circuit,
a microprocessor, or
a wireless communication device.

25. An apparatus for encoding video data, the apparatus comprising:
one or more storage media configured to store the video data; and
one or more processors configured to:
generate a predictor block using an intra prediction mode, wherein the one or more processors are configured such that, as part of generating the predictor block, the one or more processors:
for each respective sample in a set of samples in the predictor block:
determine, based on a distance between the respective sample and a first boundary of the predictor block, a value of a first weight for the respective sample;
determine, based on a distance between the respective sample and a second boundary of the predictor block, a value of a second weight for the respective sample;
determine a value of a third weight for the respective sample based on the value of the first weight for the respective sample and the value of the second weight for the respective sample;
determine a primary value for the respective sample according to the intra prediction mode; and
determine a secondary value for the respective sample as a first value for the respective sample right-shifted by a second value, the first value for the respective sample being based on (i) the value of the first weight for the respective sample, multiplied by a left reference sample for the respective sample that is left of the respective sample, (ii) the value of the second weight for the respective sample

multiplied by an above reference sample for the respective sample that is above the respective sample, (iii) the value of the third weight for the respective sample multiplied by the primary value for the respective sample, and (iv) an offset value,

wherein each respective sample in the predictor block is based on the primary value for the respective sample and the secondary value for the respective sample; and

generate residual data based on the predictor block and a coding block of the video data.

26. The apparatus of claim 25, wherein, for each respective sample in the set of samples in the predictor block, the one or more processors are configured to:

determine the value of the first weight for the respective sample by performing a shift operation on an initial value of the first weight by an amount based on the distance between the respective sample and the first boundary of the predictor block; and

determine the value of the second weight for the respective sample by performing the shift operation on an initial value of the second weight by an amount based on the distance between the respective sample and the second boundary of the predictor block.

27. The apparatus of claim 25, wherein:

the one or more processors are further configured to determine a value of a fourth weight for the respective sample as ($wL >> 4$) + ($wT >> 4$), where wL is the value of the first weight for the respective sample, wT is the value of the second weight for the respective sample, and >> is a right-shift operation, and

the first value for the respective sample is further based on the fourth weight for the respective sample multiplied by an above-left reference sample for the respective sample that is above and left of the respective sample.

28. The apparatus of claim 25, wherein, for each respective sample in the set of samples in the predictor block, the one or more processors are configured to determine a value of a fourth weight for the respective sample as a sum of a first parameter multiplied by the value of the first weight for the respective sample plus a second parameter multiplied by the value

of the second weight for the respective sample, and

the first value for the respective sample is further based on the fourth weight for the respective sample multiplied by an above-left reference sample for the respective sample that is above and left of the respective sample.

29. The apparatus of claim 25, wherein the intra prediction mode is a DC intra prediction mode, a horizontal intra prediction mode, or a vertical intra prediction mode.

30. The apparatus of claim 25, wherein the apparatus comprises:
an integrated circuit,
a microprocessor, or
a wireless communication device.

31. A non-transitory computer-readable storage medium having instructions stored thereon that, when executed, cause one or more processors to:

generate a predictor block using an intra prediction mode, wherein the one or more processors are configured such that, as part of generating the predictor block, the one or more processors:

for each respective sample in a set of samples in the predictor block:

determine, based on a distance between the respective sample and a first boundary of the predictor block, a value of a first weight for the respective sample;

determine, based on a distance between the respective sample and a second boundary of the predictor block, a value of a second weight for the respective sample;

determine a value of a third weight for the respective sample based on the value of the first weight for the respective sample and the value of the second weight for the respective sample;

determine a primary value for the respective sample according to the intra prediction mode; and

determine a secondary value for the respective sample as a first value for the respective sample right-shifted by a second value, the first value for the respective sample being based on (i) the value of the first weight for the

respective sample, multiplied by a left reference sample for the respective sample that is left of the respective sample, (ii) the value of the second weight for the respective sample multiplied by an above reference sample for the respective sample that is above the respective sample, (iii) the value of the third weight for the respective sample multiplied by the primary value for the respective sample, and (iv) an offset value,

wherein each respective sample in the predictor block is based on the primary value for the respective sample and the secondary value for the respective sample; and

reconstruct, based on the predictor block and residual data, a decoded block of video data.

32. The method of claim 1, wherein the third weight is further based on the intra prediction mode.

33. The method of claim 10, wherein the third weight is further based on the intra prediction mode.

34. The apparatus of claim 15, wherein the third weight is further based on the intra prediction mode.

35. The apparatus of claim 25, wherein the third weight is further based on the intra prediction mode.

36. The non-transitory computer-readable storage medium of claim 31, wherein the third weight is further based on the intra prediction mode.