

WHAT IS CLAIMED IS:

1. A method of processing video data, the method comprising:
 splitting a current block of video data into a plurality of sub-blocks for deriving motion information of the current block, wherein the motion information indicates motion of the current block relative to reference video data; and
 deriving, separately for each respective sub-block of the plurality of sub-blocks, motion information comprising performing a motion search for a first set of reference data that corresponds to a second set of reference data outside of each respective sub-block; and
 decoding the plurality of sub-blocks based on the derived motion information and without decoding syntax elements representative of the motion information.
2. The method of claim 1, wherein the motion information for each of the sub-blocks comprises at least one motion vector and at least one reference index of a reference picture in a reference picture list.
3. The method of claim 1, wherein the size of the sub-blocks comprises at least one of 1x1, 2x2, 4x4, 8x8, 16x16, or 32x32.
4. The method of claim 1, wherein the current block comprises a prediction unit (PU) and the sub-blocks comprise sub-PU.
5. The method of claim 1, wherein splitting the current block comprises splitting the current block to form sub-blocks of a fixed size regardless of the size of the current block.
6. The method of claim 1, wherein splitting the current block comprises splitting the current block based on a minimum sub-block size.
7. The method of claim 6, further comprising determining the minimum sub-block size based on a split depth parameter D that indicates a maximum split depth for the current block.

8. The method of claim 1, wherein deriving the motion information for the respective sub-blocks comprises:
- deriving motion information for the current block;
 - determining a search window in a reference picture based on the derived motion information for the current block;
 - searching for respective best match reference data for the respective sub-blocks within the search window; and
 - deriving the motion information for the respective sub-blocks based on the respective best match reference blocks.
9. The method of claim 8, further comprising:
- generating a candidate list comprising a plurality of candidate motion vectors, the candidate list including the derived motion information for the block as a candidate of the plurality of candidate motion vectors;
 - determining a candidate motion vector based on a best match of reference data from reference data indicated by each candidate of the plurality of candidate motion vectors;
 - searching for respective best match reference blocks for the respective sub-blocks based on the determined candidate motion vector.
10. The method of claim 1, further comprising applying a transform to the current block such that the transform is applied to all of the sub-blocks.
11. The method of claim 1, wherein splitting the current block comprises splitting the current block based on one or more syntax elements obtained from an encoded bitstream, and wherein decoding the plurality of sub-blocks comprises:
- determining a reference block in a reference picture for the respective sub-blocks based on the derived motion information;
 - decoding residual data for respective sub-blocks from an encoded bitstream; and
 - combining the decoded residual for the respective sub-blocks and the reference block for the respective sub-blocks to reconstruct the respective sub-blocks.

12. A method of processing video data, the method comprising:
splitting a current block of video data into a plurality of sub-blocks for deriving motion information of the current block, wherein the motion information indicates motion of the current block relative to reference video data; and
deriving, separately for each respective sub-block of the plurality of sub-blocks, motion information comprising performing a motion search for a first set of reference data that corresponds to a second set of reference data outside of each respective sub-block; and
encoding the plurality of sub-blocks based on the derived motion information and without encoding syntax elements representative of the motion information.
13. The method of claim 12, wherein the motion information for each of the sub-blocks comprises at least one motion vector and at least one reference index of a reference picture in a reference picture list.
14. The method of claim 12, wherein the size of the sub-blocks comprises at least one of 1x1, 2x2, 4x4, 8x8, 16x16, or 32x32.
15. The method of claim 12, wherein the current block comprises a prediction unit (PU) and the sub-blocks comprise sub-PUs.
16. The method of claim 12, wherein splitting the current block comprises splitting the current block to form sub-blocks of a fixed size regardless of the size of the current block.
17. The method of claim 12, wherein splitting the current block comprises splitting the current block based on a minimum sub-block size.
18. The method of claim 17, further comprising determining the minimum sub-block size based on a split depth parameter D that indicates a maximum split depth for the block.

19. The method of claim 12, wherein deriving the motion information for the respective sub-blocks comprises:
- deriving motion information for the block;
 - determining a search window in a reference picture based on the derived motion information for the block;
 - searching for respective best match reference data for the respective sub-blocks within the search window; and
 - deriving the motion information for the respective sub-blocks based on the respective best match reference blocks.
20. The method of claim 19, further comprising:
- generating a candidate list comprising a plurality of candidate motion vectors, the candidate list including the derived motion information for the block as a candidate of the plurality of candidate motion vectors;
 - determining a candidate motion vector based on a best match of reference data from reference data indicated by each candidate of the plurality of candidate motion vectors;
 - searching for respective best match reference blocks for the respective sub-blocks based on the determined candidate motion vector.
21. The method of claim 12, further comprising applying a transform to the current block such that the transform is applied to all of the sub-blocks.
22. The method of claim 12, wherein encoding the plurality of sub-blocks comprises encoding residual data for the respective sub-blocks an encoded bitstream, wherein the encoded bitstream does not include data indicating the derived motion vector.
23. A device for processing video data, the device comprising:
- a memory configured to store a current block of video data; and
 - one or more processors configured to:
 - split a current block of video data into a plurality of sub-blocks for deriving motion information of the current block, wherein the motion information indicates motion of the current block relative to reference video data; and

derive, separately for each respective sub-block of the plurality of sub-blocks, motion information comprising performing a motion search for a first set of reference data that corresponds to a second set of reference data outside of each respective sub-block; and

code the plurality of sub-blocks based on the derived motion information and without coding syntax elements representative of the motion information.

24. The device of claim 23, wherein the motion information for each of the sub-blocks comprises at least one motion vector and at least one reference index of a reference picture in a reference picture list.

25. The device of claim 23, wherein the size of the sub-blocks comprises at least one of 1x1, 2x2, 4x4, 8x8, 16x16, or 32x32.

26. The device of claim 23, wherein the current block comprises a prediction unit (PU) and the sub-blocks comprise sub-PU.

27. The device of claim 23, wherein to split the current block, the one or more processors are configured to split the current block to form sub-blocks of a fixed size regardless of the size of the current block.

28. The device of claim 23, wherein to split the current block, the one or more processors are configured to split the current block based on a minimum sub-block size.

29. The device of claim 28, wherein the one or more processors are further configured to determine the minimum sub-block size based on a split depth parameter D that indicates a maximum split depth for the block.

30. The device of claim 23, wherein to derive the motion information for the respective sub-blocks, the one or more processors are configured to:

derive motion information for the block;

determine a search window in a reference picture based on the derived motion information for the block;

search for respective best match reference data for the respective sub-blocks within the search window; and

derive the motion information for the respective sub-blocks based on the respective best match reference blocks.

31. The device of claim 30, wherein the one or more processors are further configured to:

generate a candidate list comprising a plurality of candidate motion vectors, the candidate list including the derived motion information for the block as a candidate of the plurality of candidate motion vectors;

determine a candidate motion vector based on a best match of reference data from reference data indicated by each candidate of the plurality of candidate motion vectors;

search for respective best match reference blocks for the respective sub-blocks based on the determined candidate motion vector.

32. The device of claim 23, wherein the one or more processors are configured to apply a transform to the current block such that the transform is applied to all of the sub-blocks.

33. The device of claim 23, wherein to code the plurality of sub-blocks, the one or more processors are configured to decode the plurality of sub-blocks, wherein to split the current block, the one or more processors are configured to split the current block based on one or more syntax elements obtained from an encoded bitstream, and wherein to decode the plurality of sub-blocks, the one or more processors are configured to:

determine a reference block in a reference picture for the respective sub-blocks based on the derived motion information;

decode residual data for respective sub-blocks from an encoded bitstream; and

combine the decoded residual for the respective sub-blocks and the reference block for the respective sub-blocks to reconstruct the respective sub-blocks.

34. The device of claim 33, further comprising a display configured to display the decoded block.

35. The device of claim 23, wherein to code the plurality of sub-blocks, the one or more processors are configured to encode the plurality of sub-blocks, and wherein to encode the plurality of sub-blocks, the one or more processors are configured to encode residual data for the respective sub-blocks an encoded bitstream, wherein the encoded bitstream does not include data indicating the derived motion vector.

36. The device of claim 35, further comprising a camera configured to capture a picture that includes the block of video data.

37. The device of claim 23, wherein the device comprises at least one of:
an integrated circuit;
a microprocessor; or
a wireless communication device.

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

split a current block of video data into a plurality of sub-blocks for deriving motion information of the current block, wherein the motion information indicates motion of the current block relative to reference video data; and

derive, separately for each respective sub-block of the plurality of sub-blocks, motion information comprising performing a motion search for a first set of reference data that corresponds to a second set of reference data outside of each respective sub-block; and

decode the plurality of sub-blocks based on the derived motion information and without decoding syntax elements representative of the motion information.

39. A device for processing video data, the device comprising:

a memory configured to store a current picture; and
one or more processors configured to:

obtain an encoded bitstream that contains a plurality of coded pictures;

interpolate one or more reference pictures that are not included in the encoded bitstream; and

decode video data of a current picture of the encoded bitstream based on the interpolated one or more reference pictures.

40. The device of claim 39, wherein the one or more processors are further configured to add the one or more interpolated pictures to a reference picture memory.
41. The device of claim 39, wherein to decode the video data of the current picture based on the interpolated one or more reference pictures, the one or more processors are configured to set the video data equal to the interpolated one or more reference pictures.
42. The device of claim 39, wherein to code the video data of the current picture, the one or more processors are configured to interpolate motion information for the video data of the current picture relative to the interpolated one or more reference pictures, wherein the interpolated motion information is not included in the encoded bitstream.
43. The device of claim 39, wherein the one or more processors are further configured to decode one or more syntax elements that indicate skipped pictures to be interpolated, wherein to interpolate the one or more reference pictures, the one or more processors are configured to interpolate the skipped pictures.
44. The device of claim 43, wherein to code the one or more syntax elements, the one or more processors are configured to code the one or more syntax elements in a supplemental enhancement information (SEI) message.