

WHAT IS CLAIMED IS:

1. A video decoder comprising circuitry configured to:

5 receive a coded video bit stream including a coded picture, the coded picture including a coded coding tree unit comprising multiple coding units and signaling information including a first index for determining a start point and a second index for determining an end point of a non-straight, non-rectangular boundary in the coding tree unit; decode the coded coding tree unit using the first index and second index by:

10 determine, using the first index and second index, the start point and end point of the non-straight, non-rectangular boundary in the coding tree unit;

generate first predictive pixel values in a first region on a first side of the non-straight, non-rectangular boundary;

15 generate second predictive pixel values in a second region on a second side of the non-straight, non-rectangular boundary;

smooth the first predictive pixel values and second predictive pixel values across the non-straight, non-rectangular boundary; and

add residual pixel values to the smoothed first and second predictive pixel values.

2. The decoder of claim 1 wherein the non-straight, non-rectangular boundary is a curve.

3. The decoder of claim 1 wherein the picture depicts a curved object and the non-straight, non-rectangular boundary represents a boundary of the object.

4. The decoder of claim 1 wherein the coding tree unit is $N \times N$, wherein each coding unit is $N/2 \times N/2$, and N is one of 128, 64, or 32.

5. The decoder of claim 1 wherein the start point is on a first side of the coding tree unit a first offset distance from a first corner of the coding tree unit.

6. The decoder of claim 5, wherein the end point is located on a second side of the coding tree unit a second offset distance from a second corner of the coding tree unit.

7. A decoder comprising circuitry configured to:

receive a coded video bit stream including a coded picture, the coded picture including a block of coded pixels and signaling information including a first index for determining the start point of a non-straight non-rectangular partition and a second index for determining the end point of the non-straight non-rectangular partition in the block;

decode the block of coded pixels using the first index and second index by:

determine, using the first index, a start point of a non-straight non-rectangular partition in the block, the start point being located on a first side of the block a first offset distance from a first corner of the block;

determine, using the second index, an endpoint of the non-straight non-rectangular partition in the block, the end point being located on a second side of the block, a second offset distance from a second corner of the block;

generate first predictive pixel values in a first region on a first side of the non-straight, non-rectangular partition;

generate second predictive pixel values in a second region on a second side of the non-straight, non-rectangular partition;

smooth the first predictive pixel values and second predictive pixel values across the non-straight non-rectangular partition; and

add residual pixel values to the smoothed first and second predictive pixel values.

8. The decoder of claim 7 wherein the coded picture includes a block of intra-predicted pixels and wherein the decoder includes an intra-prediction processor for decoding the block of intra-predicted pixels.

9. The decoder of claim 7 wherein the block is an NxN coding tree unit comprising a plurality of coding units.