

CLAIMS

What is claimed is:

1. An apparatus comprising:
a processor configured to:
 obtain a point cloud,
 make a choice between octree encoding or quadtree encoding of a parent node,
and
 encode the parent node into a bitstream based on the choice; and
a transmitter coupled to the processor and configured to transmit the bitstream.
2. The apparatus of claim 1, wherein the octree encoding is three-dimensional (3D).
3. The apparatus of claim 2, wherein the octree encoding uses eight cube child nodes.
4. The apparatus of claim 1, wherein the quadtree encoding is two-dimensional (2D).
5. The apparatus of claim 4, wherein the quadtree encoding uses four square child nodes.
6. The apparatus of claim 1, wherein the processor is further configured to further make the choice based on a flatness parameter.
7. The apparatus of claim 1, wherein the processor is further configured to further make the choice based on a rate distortion.
8. A method comprising:
obtaining a point cloud;
making a choice between octree encoding or quadtree encoding of a parent node;
encoding the parent node into a bitstream based on the choice; and
transmitting the bitstream.
9. The method of claim 8, wherein the octree encoding is three-dimensional (3D).

10. The method of claim 9, wherein the octree encoding uses eight cube child nodes.
11. The method of claim 8, wherein the quadtree encoding is two-dimensional (2D).
12. The method of claim 11, wherein the quadtree encoding uses four square child nodes.
13. The method of claim 8, further comprising further making the choice based on a flatness parameter.
14. The method of claim 8, further comprising further making the choice based on a rate distortion.
15. An apparatus comprising:
 - a receiver configured to receive a bitstream; and
 - a processor coupled to the receiver and configured to:
 - parse from the bitstream a first parameter indicating a depth of point cloud coding (PCC),
 - decode first nodes before the depth using octree decoding,
 - parse from the bitstream a second parameter indicating a node coding mode for second nodes at and after the depth, and
 - decode the second nodes based on the second parameter.
16. The apparatus of claim 15, wherein the octree decoding is three-dimensional (3D) and uses eight cube child nodes.
17. The apparatus of claim 15, wherein the quadtree decoding is two-dimensional (2D) and uses four square child nodes.
18. The apparatus of claim 15, wherein the processor is further configured to further decode the first nodes and the second nodes until reaching a level of detail (LoD).

19. A method comprising:
 - receiving a bitstream;
 - parsing from the bitstream a first parameter indicating a depth of point cloud coding (PCC);
 - decoding first nodes before the depth using octree decoding;
 - parsing from the bitstream a second parameter indicating a node coding mode for second nodes at and after the depth;
 - decoding the second nodes based on the second parameter.
20. An apparatus comprising:
 - a processing means configured to:
 - obtain a point cloud,
 - make a choice between octree encoding or quadtree encoding of a parent node,
 - and
 - encode the parent node into a bitstream based on the choice; and
 - a transmission means coupled to the processing means and configured to transmit the bitstream.