CLAIMS:

1. A method for video coding performed by at least one processor, the method comprising:

obtaining a leaf node of geometry based point cloud compression (G-PCC) data;

splitting the leaf node into a plurality of cuboids, wherein each cuboid includes edges;

deriving separate triangle soups for each of the cuboids; and

coding a plurality of flags respectively for each of the edges of each of the cuboids,

wherein first ones of the flags indicate presence of vertices, of the separate triangle soups, on the edges, and

wherein second ones of the flags indicate absence of the vertices from the edges.

2. The method according to claim 1, further comprising:

entropy coding a signaling of a splitting pattern of the leaf node by two bits,

wherein the two bits indicate whether the leaf node is split into the cuboids in half along one of an x-axis, a y-axis, and a z-axis.

3. The method according to claim 2,

wherein a location, at which the leaf node is split and along at least one of the x-axis and the y-axis is signaled for each of the cuboids.

4. The method according to claim 1, further comprising:

deriving the triangle soups recursively at the leaf node among a plurality of lead nodes of the G-PCC data.

5. The method according to claim 4, further comprising:

entropy coding a signaling of a splitting pattern of the leaf node by three bits,

wherein the three bits indicate whether the leaf node is split into the cuboids in half along one of an x-axis, a y-axis, a z-axis, a combination of the x-axis and the y-axis, a combination of the x-axis and the z-axis, a combination of the y-axis and the z-axis, and a combination of the x-axis, the y-axis, and the z-axis.

6. The method according to claim 5,

wherein a location, at which the leaf node is split and along at least one of the x-axis, the y-axis, and the z-axis, is signaled for each of the cuboids.

7. The method according to claim 6, further comprising:

determining whether a flag is set to the leaf node limiting at least one direction along which the leaf node may not be split.

8. The method according to claim 1, further comprising:

determining the splitting pattern according to a rate-distortion optimization (RDO) scheme

9. The method according to claim 1,

wherein splitting the leaf node into the plurality of cuboids comprises splitting the leaf node in half.

10. The method according to claim 1,

wherein splitting the leaf node into the plurality of cuboids comprises splitting the leaf node into non-equal sized portions.

11. An apparatus for video decoding, the apparatus comprising:

at least one memory configured to store computer program code;

at least one processor configured to access the computer program code and operate as instructed by the computer program code, the computer program code including:

obtaining code configured to cause the at least one processor to obtain a leaf node of geometry based point cloud compression (G-PCC) data;

splitting code configured to cause the at least one processor to split the leaf node into a plurality of cuboids, wherein each cuboid includes edges;

deriving code configured to cause the at least one processor to derive separate triangle soups for each of the cuboids; and

coding code configured to cause the at least one processor to code a plurality of flags respectively for each of the edges of each of the cuboids,

wherein first ones of the flags indicate presence of vertices, of the separate triangle soups, on the edges, and

wherein second ones of the flags indicate absence of the vertices from the edges.

12. The apparatus according to claim 11,

wherein the coding code is further configured to cause the at least one processor to entropy code a signaling of a splitting pattern of the leaf node by two bits,

wherein the two bits indicate whether the leaf node is split into the cuboids in half along one of an x-axis, a y-axis, and a z-axis.

13. The apparatus according to claim 12, wherein a location, at which the leaf node is split and along at least one of the x-axis and the y-axis is signaled for each of the cuboids.

14. The apparatus according to claim 11, wherein the deriving code is further configured to cause the at least one processor to derive the triangle soups recursively at the leaf node among a plurality of lead nodes of the G-PCC data.

15. The apparatus according to claim 14,

wherein the coding code is further configured to cause the at least one processor to entropy code a signaling of a splitting pattern of the leaf node by three bits,

wherein the three bits indicate whether the leaf node is split into the cuboids in half along one of an x-axis, a y-axis, a z-axis, a combination of the x-axis and the y-axis, a combination of the x-axis and the z-axis, a combination of the y-axis and the z-axis, and a combination of the x-axis, the y-axis, and the z-axis.

16. The apparatus according to claim 15,

wherein a location, at which the leaf node is split and along at least one of the x-axis, the y-axis, and the z-axis, is signaled for each of the cuboids.

17. The apparatus according to claim 16, wherein the computer program code further includes determining code configured to cause the at least one processor to determine whether a flag is set to the leaf node limiting at least one direction along which the leaf node may not be split.

18. The apparatus according to claim 11, wherein the computer program code further includes determining code configured to cause the at least one processor to determine the splitting pattern according to a rate-distortion optimization (RDO) scheme

19. The apparatus according to claim 11,

wherein splitting the leaf node into the plurality of cuboids comprises splitting the leaf node in half.

20. A non-transitory computer readable medium storing a program configured to cause a computer to:

obtain a leaf node of geometry based point cloud compression (G-PCC) data;

split the leaf node into a plurality of cuboids, wherein each cuboid includes edges;

derive separate triangle soups for each of the cuboids; and

code a plurality of flags respectively for each of the edges of each of the cuboids,

wherein first ones of the flags indicate presence of vertices, of the separate triangle soups, on the edges, and

wherein second ones of the flags indicate absence of the vertices from the edges.