

WHAT IS CLAIMED IS:

1. A method for point cloud coding, comprising:
 - determining, by a processor, one or more original points in a point cloud that are associated with a reconstructed position, positions of the one or more original points being reconstructed, according to a geometry quantization, to the reconstructed position;
 - determining, by the processor, an attribute value for the reconstructed position based on attribute information of the one or more original points; and
 - encoding, by the processor, texture of the point cloud with the reconstructed position having the determined attribute value.
2. The method of claim 1, further comprising:
 - storing, a data structure that associates the one or more original points with the reconstructed position according to the geometry quantization.
3. The method of claim 2, further comprising:
 - performing, by the processor, an octree partition that partitions a space of the point cloud into voxels; and
 - associating, by the processor, the one or more original points that are positioned in a voxel with the reconstructed position for representing the voxel.
4. The method of claim 2, further comprising:
 - accessing the data structure based on the reconstructed position to retrieve the one or more original points associated with the reconstructed position.
5. The method of claim 1, further comprising:
 - calculating, by the processor, an average of attribute values of multiple original points as the determined attribute value for the reconstructed position in response to the multiple original points being associated with the reconstructed position.
6. The method of claim 5, further comprising:
 - calculating, by the processor, a weighted average of the attribute values of the multiple original points as the determined attribute value for the reconstructed position.
7. The method of claim 6, further comprising:
 - weighting, by the processor, an attribute value of an original point in the multiple original points based on an inverse of a distance between the original point and the reconstructed position.
8. The method of claim 1, further comprising:

assigning, by the processor, a specific attribute value of a nearest point in multiple original points to be the determined attribute value for the reconstructed position in response to the multiple original points being associated with the reconstructed position.

9. The method of claim 8, further comprising:

selecting, by the processor, a median attribute value among attribute values for nearest points in response to the nearest points in the multiple original points having a same shortest distance to the reconstructed position.

10. The method of claim 8, further comprising:

calculating, by the processor, a mean attribute value of attribute values for nearest points in response to the nearest points in the multiple original points having a same shortest distance to the reconstructed position.

11. An apparatus for point cloud coding, comprising:

processing circuitry configured to:

determine one or more original points in a point cloud that are associated with a reconstructed position, positions of the one or more original points being reconstructed, according to a geometry quantization, to the reconstructed position;

determine an attribute value for the reconstructed position based on attribute information of the one or more original points; and

encode texture of the point cloud with the reconstructed position having the determined attribute value.

12. The apparatus of claim 11, further comprising:

a memory configured to store a data structure that associates the one or more original points with the reconstructed position according to the geometry quantization.

13. The apparatus of claim 12, wherein the processing circuitry is configured to:

perform an octree partition that partitions a space of the point cloud into voxels;

and

associate the one or more original points that are positioned in a voxel with the reconstructed position for representing the voxel.

14. The apparatus of claim 12, wherein the processing circuitry is configured to:

access the data structure based on the reconstructed position to retrieve the one or more original points associated with the reconstructed position.

15. The apparatus of claim 11, wherein the processing circuitry is configured to:

calculate an average of attribute values of multiple original points as the determined attribute value for the reconstructed position in response to the multiple original points being associated with the reconstructed position.

16. The apparatus of claim 15, wherein the processing circuitry is configured to:
calculate a weighted average of the attribute values of the multiple original points as the determined attribute value for the reconstructed position.

17. The apparatus of claim 16, wherein the processing circuitry is configured to:
weight an attribute value of an original point in the multiple original points based on an inverse of a distance between the original point and the reconstructed position.

18. The apparatus of claim 11, wherein the processing circuitry is configured to:
assign a specific attribute value of a nearest point in multiple original points to be the determined attribute value for the reconstructed point in response to the multiple original points being associated with the reconstructed position.

19. The apparatus of claim 18, wherein the processing circuitry is configured to:
select a median attribute value among attribute values for nearest points in response to the nearest points in the multiple original points having a same shortest distance to the reconstructed position.

20. The apparatus of claim 18, wherein the processing circuitry is configured to:
calculate a mean attribute value of attribute values for nearest points in response to the nearest points in the multiple original points having a same shortest distance to the reconstructed position.