CLAIMS

1. A method for encoding, in a bitstream, point attributes associated to a point of a point cloud, comprising:

~~For~~ for a point P to be encoded to the bitstream determining a predictor list of k predictor points of the point cloud including the points of the point cloud nearest to the point P to be encoded which are selected according to their relative position to each other; and

~~Encoding~~ encoding the point attributes associated to the point P to be encoded by predictive encoding based on attributes of the predictor points of the predictor list.

2. A method for decoding, from a bitstream, point attributes associated to a point of a point cloud, comprising:

~~For~~ for a point P to be decoded to the bitstream determining a predictor list of k predictor points of the point cloud including the points of the point cloud nearest to the point P to be decoded which are selected according to their relative position to each other ; and

~~Decoding~~ decoding the point attributes associated to the point P to be decoded by predictive decoding based on attributes of the predictor points of the predictor list.

3. The method according to claim 1 ~~or 2~~, wherein determining the predictor list comprises:

~~Determining~~ determining an initial list of k predictor points P0,…,P(k-1) of the point cloud including the k points of the point cloud nearest to the point P to be encoded;

~~Selecting~~ selecting the predictor points of the initial list as predictor list according to their relative position to each other.

4. The method according to claim 3, wherein if the predictor points of the initial list are not selected:

~~Determining~~ determining a candidate list of n predictor points by the k to k+n-1 nearest points Pk,…,P(k+n-1) of the point cloud;

~~Replacing~~ replacing at least one predictor point of the initial list by a predictor point of the candidate list; and

~~Selecting~~ selecting the predictor points of the acquired list as predictor list according to their relative position to each other.

5. The method according to claim 4, wherein

if the acquired predictor list is not selected, iteratively replacing at least one predictor point by each predictor point of the candidate list to acquire a predictor list until the predictor points of the predictor list are selected.

6. The method according to any of claims 3 to 5, wherein only the last predictor point of the initial list and/or the predictor list is replaced.

7. The method according to ~~any of claims 1 to 6~~claim 1, wherein k is equal to or larger than 3.

8. The method according to claim 1~~any of claims 1 to 7~~, wherein the space around the point P to be encoded is separated into octants along the X, Y, and Z-axis of encoding/decoding, wherein the predictor points are selected if at least two predictor points are located in opposite octants, wherein opposite octants share only the common point P to be encoded.

9. The method according to claim 1~~any of claims 1 to 8~~, wherein the space around the point P to be encoded is separated into octants along the X, Y, and Z-axis of encoding/decoding, wherein the predictor points are selected if at least two predictor points are located in loose opposite octants, wherein loose opposite octants share only one common edge.

10. The method according to claim 8 or 9, wherein selecting the predictor points of the initial list and/or the predictor list comprises:

determining whether at least two predictor points are located in opposite octants and subsequently determining whether at least two predictor points are located in loose opposite octants.

11. The method according to any of claims 3 to 10, wherein at least one threshold Ti is defined by Ti = W x dist(P, Pi), with a weight W>1 and Pi a predictor point of the initial list, wherein predictor points of the candidate list are eligible for replacing the at least one predictor point of the initial list if the distance between the predictor point of the candidate list to the point P to be encoded/decoded is smaller than Ti.

12. The method according to any of claims 3 to 11, wherein weight information W and/or n is included into the bitstream.

13. The method according to any of claims 3 to 11, wherein the bitstream is an MPEG G-PCC compliant bitstream and weight information W and/or n is present in the Attribute Parameter Set, APS, of the G-PCC bitstream.

14. An encoder for encoding, in a bitstream, point attributes associated to a point of a point cloud, comprising: a processor and a memory storage device, wherein in the memory storage device instructions executable by the processor are stored that, when executed, cause the processor to perform the method according to any of claims 1 and 3 to 13 ~~when dependent on claim 1~~.

15. A decoder for encoding, in a bitstream, point attributes associated to a point of a point cloud, comprising: a processor and a memory storage device, wherein in the memory storage device instructions executable by the processor are stored that, when executed, cause the processor to perform the method according to claim 2~~any of claims 2 to 13~~.

~~16. A non-transitory computer-readable storage medium storing processor-executed instructions that, when executed by a processor, cause the processor to perform the method according to any one of claims 1 to 13.~~

16. The method according to claim 2, wherein determining the predictor list comprises:

determining an initial list of k predictor points P0,…,P(k-1) of the point cloud including the k points of the point cloud nearest to the point P to be encoded;

selecting the predictor points of the initial list as predictor list according to their relative position to each other.

17. The method according to claim 16, wherein if the predictor points of the initial list are not selected:

determining a candidate list of n predictor points by the k to k+n-1 nearest points Pk,…,P(k+n-1) of the point cloud;

replacing at least one predictor point of the initial list by a predictor point of the candidate list; and

selecting the predictor points of the acquired list as predictor list according to their relative position to each other.

18. The method according to claim 17, wherein

if the acquired predictor list is not selected, iteratively replacing at least one predictor point by each predictor point of the candidate list to acquire a predictor list until the predictor points of the predictor list are selected.

19. The method according to claim 16, wherein only the last predictor point of the initial list and/or the predictor list is replaced.

20. The method according to claim 16, wherein at least one threshold Ti is defined by Ti = W x dist(P, Pi), with a weight W>1 and Pi a predictor point of the initial list, wherein predictor points of the candidate list are eligible for replacing the at least one predictor point of the initial list if the distance between the predictor point of the candidate list to the point P to be encoded/decoded is smaller than Ti.