

CLAIMS

1. A method for point cloud data processing, comprising:

for each of multiple data points of first point cloud data, acquiring initial feature information of a respective one of the multiple data points of first point cloud data and initial feature information of each of multiple neighboring points of the respective data point taken as a center point;

determining correlation degree information between the respective data point and the multiple neighboring points based on the initial feature information of the respective data point and the initial feature information of each of the multiple neighboring points;

determining first target feature information of the respective data point based on the correlation degree information between the respective data point and the multiple neighboring points; and

performing point cloud data reconstruction based on the first target feature information of each of the multiple data points, to obtain second point cloud data;

wherein determining the correlation degree information between the respective data point and the multiple neighboring points based on the initial feature information of the respective data point and the initial feature information of each of the multiple neighboring points comprises:

performing at least one of linear transformation or nonlinear transformation on the initial feature information of the respective data point and the initial feature information of each of the multiple neighboring points respectively to obtain first feature information of the respective data point and first feature information of each of the multiple neighboring points; and

determining the correlation degree information between the respective data point and the multiple neighboring points based on the first feature information of the respective data point and the first feature information of each of the multiple neighboring points;

wherein determining the correlation degree information between the respective data point and the multiple neighboring points based on the first feature information of the respective data

point and the first feature information of each of the multiple neighboring points comprises:

obtaining the correlation degree information between the respective data point and the multiple neighboring points by executing a connection operation on the first feature information of each data point and the first feature information of each neighboring point.

2. The method of claim 1, wherein performing at least one of linear transformation or nonlinear transformation on the initial feature information of the respective data point and the initial feature information of each of the multiple neighboring points respectively to obtain the first feature information of the respective data point and the first feature information of each of the multiple neighboring points comprises:

performing dimension extension on the initial feature information of the respective data point to obtain second feature information of the respective data point;

performing dimension compression on the second feature information of the respective data point to obtain the first feature information of the respective data point, a dimension of the first feature information of the respective data point being larger than a dimension of the initial feature information of the respective data point;

performing dimension extension on the initial feature information of each of the multiple neighboring points to obtain second feature information of each of the multiple neighboring points; and

performing dimension compression on the second feature information of each of the multiple neighboring points to obtain the first feature information of each of the multiple neighboring points, a dimension of the first feature information of each of the multiple neighboring points being larger than a dimension of the initial feature information of each of the multiple neighboring points.

3. The method of any one of claims 1-2, wherein determining the first target feature information of the respective data point based on the correlation degree information between the respective data point and each of the multiple neighboring points comprises:

determining correlative feature information of the respective data point based on the correlation degree information between the respective data point and the multiple neighboring

points; and

merging the correlative feature information of the respective data point and the initial feature information of the respective data point, to obtain the first target feature information of the respective data point.

4. The method of claim 3, wherein determining the correlative feature information of the respective data point based on the correlation degree information between the respective data point and the multiple neighboring points comprises:

performing at least one of linear transformation or nonlinear transformation on the initial feature information of each of the multiple neighboring points respectively, to obtain third feature information of each of the multiple neighboring points; and

determining the correlative feature information of the respective data point based on the correlation degree information between the respective data point and the multiple neighboring points and the third feature information of each of the multiple neighboring points.

5. The method of claim 4, wherein performing at least one of linear transformation or nonlinear transformation on the initial feature information of each of the multiple neighboring points to obtain the third feature information of each of the multiple neighboring points comprises:

performing dimension extension on the initial feature information of each of the multiple neighboring points respectively, to obtain fourth feature information of each of the multiple neighboring points; and

performing dimension compression on the fourth feature information of each of the multiple neighboring points respectively, to obtain the third feature information of each of the multiple neighboring points, a dimension of the third feature information of each of the multiple neighboring points being larger than the dimension of the initial feature information of each of the multiple neighboring points.

6. The method of claim 4 or 5, wherein determining the correlative feature information of the

respective data point based on the correlation degree information between the respective data point and each of the multiple neighboring points and the third feature information of each of the multiple neighboring points comprises:

aggregating the correlation degree information and the third feature information of each of the multiple neighboring points, to obtain fifth feature information of each of the multiple neighboring points; and

determining the correlative feature information of the respective data point based on the fifth feature information of each of the multiple neighboring points.

7. The method of claim 6, wherein determining the correlative feature information of the respective data point based on the fifth feature information of each of the multiple neighboring points comprises:

performing dimension extension on the fifth feature information of each of the multiple neighboring points respectively, to obtain sixth feature information of each of the multiple neighboring points; and

determining the correlative feature information of the respective data point based on the sixth feature information of each of the multiple neighboring points.

8. The method of any one of claims 1-7, further comprising:

acquiring third point cloud data;

complementing the third point cloud data to obtain complete fourth point cloud data; and

merging the third point cloud data and the fourth point cloud data to generate the first point cloud data.

9. The method of claim 8, wherein merging the third point cloud data and the fourth point cloud data to generate the first point cloud data comprises:

merging the third point cloud data and the fourth point cloud data to obtain input point

cloud data;

acquiring starting feature information of each of multiple data points of the input point cloud data; and

performing at least one of linear transformation or nonlinear transformation on the starting feature information of each of the multiple data points to obtain the first point cloud data.

10. The method of claim 9, wherein performing point cloud data reconstruction based on the first target feature information of each of the multiple data points to obtain the second point cloud data comprises:

determining the first target feature information of the respective data point as second target feature information of the respective data point, or, performing at least one of linear transformation or nonlinear transformation on the first target feature information of the respective data point to determine the second target feature information of the respective data point;

merging the second target feature information of the respective data point and the starting feature information of the respective data point to obtain third target feature information of the respective data point; and

performing point cloud data reconstruction based on the third target feature information of each of the multiple data points to obtain the second point cloud data.

11. The method of any one of claims 1-10, wherein the initial feature information of each of the multiple neighboring points comprises initial feature information of at least two groups of neighboring points, each group of neighboring points comprise multiple neighboring points, and any two groups of neighboring points in the at least two groups of neighboring points have different numbers of neighboring points;

wherein determining the correlation degree information between the respective data point and the multiple neighboring points based on the initial feature information of the respective data point and the initial feature information of each of the multiple neighboring points comprises: for

each group of neighboring points corresponding to the respective data point, determining correlation degree information between the respective data point and the group of neighboring points based on the initial feature information of the respective data point and the initial feature information of the group of neighboring points; and

wherein determining the first target feature information of the respective data point based on the correlation degree information between the respective data point and the multiple neighboring points comprises: determining the first target feature information of the respective data point based on the correlation degree information between the respective data point and each group of neighboring points in the at least two groups of neighboring points.

12. An apparatus for point cloud data processing, configured to perform the method of claim 1.

13. An electronic device, comprising a memory and a processor, wherein

the memory stores a computer program capable of running in the processor; and

the processor is configured to execute the computer program to implement the steps in the method of any one of claims 1-11.

14. A computer storage medium, storing one or more programs, wherein the one or more programs, when executed by one or more processors, cause the one or more processors to implement the steps in the method of any one of claims 1-11.