CLAIMS

What is claimed is:

1. A collision data processing method, performed in an electronic device, the method comprising:

determining a target collision body in a virtual scene, the target collision body being a convex polyhedron having vertices;

obtaining distance relations between the respective vertices on the target collision body, the distance relation characterizing a shape feature of the target collision body; and

transforming, in a case of transforming the target collision body into a regular geometry according to the distance relations, vertex data of the target collision body according to a data format that matches the regular geometry, to obtain collision data of the target collision body;

wherein the obtaining a distance relation between the respective vertices on the target collision body comprises: separately obtaining, in a case that a quantity of the vertices on the target collision body reaches a first threshold, the distance relations between a plurality of edges respectively connected to each vertex on the target collision body; and

before the transforming vertex data of the target collision body according to a data format that matches the regular geometry, the method further comprises: determining, in a case that the distance relations indicate that three edges connected to one target vertex in the target collision body are perpendicular to one another, that the target collision body is transformed into a standard rectangular solid, the regular geometry comprising the standard rectangular solid.

2. The method according to claim 1, wherein before the transforming vertex data of the target collision body according to a data format that matches the regular geometry, to obtain collision data of the target collision body, the method further comprises:

determining a current vertex from the respective vertices on the target collision body, and determining a first reference point and a second reference point which are closest to the current vertex;

obtaining a first distance between the current vertex and the first reference point and a second distance between the current vertex and the second reference point;

determining a third distance according to the first distance and the second distance, the third distance being a length of a hypotenuse of a right triangle, and the right triangle taking the first

distance and the second distance as lengths of right-angled edges;

determining a third reference point from respective vertices other than the current vertex, the first reference point and the second reference point on the target collision body according to the third distance, a distance between the current vertex and the third reference point being the third distance;

determining a reference plane of the target collision body according to the first reference point, the second reference point, and the third reference point;

determining a fourth reference point closest to the current vertex from respective vertices other than the current vertex, the first reference point, the second reference point and the third reference point on the target collision body, a connecting line between the fourth reference point and the current vertex is perpendicular to the reference plane; and

determining the current vertex as the target vertex, and determining, according to the first distance, the second distance, and a fourth distance between the current vertex and the fourth reference point, a convergence direction of an oriented bounding box that matches the standard rectangular solid, the vertex data comprising a direction vector of the convergence direction of the oriented bounding box.

3. The method according to claim 1, wherein the obtaining distance relations between the respective vertices on a target collision body comprises:

determining a center coordinate point of the vertices on the target collision body in a case that a quantity of the vertices on the target collision body reaches a first threshold; and

obtaining distance relations between the respective vertices and the center coordinate point; and

before the transforming vertex data of the target collision body according to a data format that matches the regular geometry, the method further comprises:

determining, in a case that the distance relations indicate that respective distances between the respective vertices and the center coordinate point are less than a first distance threshold, that the target collision body is recognized as a reference rectangular solid, the regular geometry comprising the reference rectangular solid, and the reference rectangular solid being a structure similar to that of a standard rectangular solid; and

determining, in a case of determining at least two groups of parallel surfaces according to the distance relations of the respective vertices, that the target collision body is recognized as a

reference rectangular solid.

4. The method according to claim 3, wherein after the determining that the target collision body is recognized as a reference rectangular solid, the method further comprises:

obtaining a first volume value corresponding to the target collision body, and a second volume value corresponding to the reference rectangular solid;

determining a ratio of the first volume value to the second volume value; and

determining, in a case that the ratio reaches a second threshold, that the target collision body is transformed into the reference rectangular solid.

5. The method according to claim 4, wherein after the determining that the target collision body is transformed into the reference rectangular solid, the method further comprises:

determining a projection plane corresponding to the reference rectangular solid;

mapping the respective vertices on the reference rectangular solid to the projection plane, to obtain projection points respectively corresponding to the respective vertices;

grouping the respective vertices according to projection distances between the vertices and the corresponding projection points to obtain a first plane vertex set and a second plane vertex set, the vertices in the first plane vertex set being located on a first plane, and the vertices in the second plane vertex set being located on a second plane; and

determining, according to the first plane and the second plane in a case that the first plane is parallel to the second plane, a convergence direction of an oriented bounding box that matches the reference rectangular solid, the vertex data comprising a direction vector of the convergence direction of the oriented bounding box.

6. The method according to claim 4, after the determining that the target collision body is transformed into the reference rectangular solid, further comprising:

determining a forward vector corresponding to a geometric center point of the reference rectangular solid, and determining a vertical plane containing the forward vector;

rotating the vertical plane for multiple times by taking a direction of the forward vector as an axis, and performing following operations after each rotation:

grouping the respective vertices on the reference rectangular solid according to vertical distances from the respective vertices to the vertical plane to obtain a third plane vertex set and a fourth plane vertex set, the vertices in the third plane vertex set being located on a third plane,

and the vertices in the fourth plane vertex set being located on a fourth plane; and

determining, according to the third plane and the fourth plane in a case that the third plane is parallel to the fourth plane, a convergence direction of an oriented bounding box that matches the reference rectangular solid, the vertex data comprising a direction vector of the convergence direction of the oriented bounding box.

7. The method according to claim 4, after the determining a ratio of the first volume value to the second volume value, further comprising:

extracting, in a case that the ratio does not reach the second threshold, a convex feature of the reference rectangular solid, the convex surface feature comprising edge lengths of three axial edges corresponding to the reference rectangular solid, and the three axial edges being mutually perpendicular edges in the reference rectangular solid;

in a case that a first difference value between the edge length of the first axial edge and the edge length of the third axial edge and a second difference value between the edge length of the second axial edge and the edge length of the third axial edge are both greater than a second distance threshold, determining that the reference rectangular solid is transformed into a long stick type rectangular solid; and

in a case that a third difference value between the edge length of the first axial edge and the edge length of the second axial edge and a fourth difference value between the edge length of the first axial edge and the edge length of the third axial edge are both greater than a third distance threshold, determining that the reference rectangular solid is transformed into a roof-like rectangular solid.

8. The method according to claim 3, wherein after the obtaining distance relations between the respective vertices and the center coordinate point, the method further comprises:

obtaining a geometric center point of the target collision body in a case that it is determined that the target collision body is a non-reference rectangular solid;

obtaining connecting line distances from the respective vertices on the target collision body to the geometry central point;

recognizing the target collision body as a cylinder in a case that difference values between the respective connecting line distances are less than a third threshold, the regular geometry comprising the cylinder; and

constructing a spatial function of the cylinder according to coordinates of the geometric

center point and a radius of the cylinder, the vertex data comprising the spatial function of the cylinder.

9. The method according to claim 3 or 8, wherein before the transforming vertex data of the target collision body according to a data format that matches the regular geometry, to obtain collision data of the target collision body, the method further comprises:

splitting the target collision body by using equidistant bounding boxes, to obtain a plurality of collision sub-bodies;

determining intersection points of connecting lines between the respective vertices on the target collision body and the respective collision sub-bodies in the plurality of collision sub-bodies;

performing converge combination on the intersection points in each collision sub-body in sequence to obtain a bounding sub-box corresponding to the collision sub-body;

traversing the respective bounding sub-boxes, and merging bounding sub-boxes with size difference values less than a fourth threshold, to obtain a bulk bounding box corresponding to the target collision body; and

taking vertex data of the bulk bounding box as the vertex data of the target collision body.

10. The method according to any one of claims 1 to 8, after the transforming the target collision body to a regular geometry according to the distance relations, the method further comprising:

determining, in a case that the regular geometry comprises a plurality of regular sub-geometries, sizes of the regular sub-geometries;

merging two adjacent regular sub-geometries in a case that a difference value between the sizes of the two adjacent regular sub-geometries is less than a fifth threshold; and

in a case that a difference value between a size of a first regular sub-geometry and a size of a second regular sub-geometry in the plurality of rule sub-geometries is less than a sixth threshold, and the first regular sub-geometry is located inside the second regular sub-geometry, culling the first regular sub-geometry.

11. The method according to any one of claims 1 to 8, wherein the transforming vertex data of the target collision body according to a data format that matches the regular geometry, to obtain collision data of the target collision body comprises:

transforming the vertex data of the target collision body according to a data format of a geometric index that matches the regular geometry, to obtain the collision data.

12. A collision data processing apparatus, comprising:

a first determining unit, configured to determine a target collision body in a virtual scene, the target collision body being a convex polyhedron having vertices;

a first obtaining unit, configured to obtain distance relations between the respective vertices on the target collision body, the distance relation characterizing a shape feature of the target collision body; and

a first processing unit, configured to transform, in a case of transforming the target collision body into a regular geometry according to the distance relations, vertex data of the target collision body according to a data format that matches the regular geometry, to obtain collision data of the target collision body;

wherein the first obtaining unit is configured to: separately obtain, in a case that a quantity of the vertices on the target collision body reaches a first threshold, the distance relations between a plurality of edges respectively connected to each vertex on the target collision body; and

before the transforming vertex data of the target collision body according to a data format that matches the regular geometry, the first obtaining unit is further configured to: determine, in a case that the distance relations indicate that three edges connected to one target vertex in the target collision body are perpendicular to one another, that the target collision body is transformed into a standard rectangular solid, the regular geometry comprising the standard rectangular solid;

13. A computer-readable storage medium, comprising a stored program, the program, when executed, implementing the method according to any one of claims 1 to 11.

14. An electronic device, comprising a memory and a processor, the memory storing a computer program, and the processor being configured to implement the method according to any one of claims 1 to 11 by using the computer program.

15. A computer program product, comprising computer instructions stored in a computer-readable storage medium, the computer instructions, when executed by a processor, causing the processor to implement the method according to any one of claims 1 to 11.