CLAIMS

1. A method of encoding a point cloud into a bitstream of encoded point cloud data representing a physical object, points of the point cloud being ordered based on azimuthal angles (ϕ_n) representing capture angles of sensors and sensor indices (λ_n) associated with sensors, wherein the method comprises encoding, into a bitstream, at least one order index difference (Δo_n) representing a difference between order indices of two consecutive ordered points by:

obtaining (810) at least one binary data (f_j) by binarizing the at least one order index difference (Δo_n); and

for each binary data, selecting (820) a context based on a distance (C_j) between an azimuthal angle (ϕ^j) associated with the binary data and an azimuthal angle (ϕ_{penult}, ϕ_{al}) of an already encoded point, and context-based entropy coding (830) the binary data in the bitstream, based on the selected context.

2. The method of claim 1, wherein the already encoded point is a penultimate already coded point (P_{penult}) with a same sensor index as a sensor index (λ^j) associated with the binary data (f_j).

3. A method of decoding a point cloud from a bitstream of encoded point cloud data representing a physical object, wherein the method comprises decoding at least one order index difference (Δo_n) representing a difference between order indices of two consecutive ordered points based on at least one binary data (f_j) decoded from the bitstream, each binary data (f_j) being decoded by:

selecting (910) a context based on a distance (C_j) between an azimuthal angle (ϕ^j) associated with the binary data (f_j) and an azimuthal angle (ϕ_{penult}, ϕ_{al}) of an already decoded point;

context-based entropy decoding (920) said at least one binary data based on the selected context and a probability information relative to the binary data decoded from the bitstream; and

decoding (930) an order index difference (Δo_n) from the at least one context-based entropy decoded binary data (f_j).

4. The method of claim 3, wherein the already decoded point is a penultimate already decoded point (P_{penult}) with a same sensor index as a sensor index (λ^j) associated with the binary data (f_j).

5. The method of claim 3, wherein a context for decoding a binary data being selected from a context table indexed by a context index (ctxIdx), and wherein the context index for a binary data (f_j) equals the distance (C_j) between the azimuthal angle (ϕ^j) associated with the binary data (f_j)and an azimuthal angle (ϕ_{penult}, ϕ_{al}) of the already decoded point.

6. The method of claim 3, wherein a context for decoding a binary data being selected from a context table indexed by a context index (ctxIdx), and wherein the context index (ctxIdx) for a binary data (f_j) depends on the rank (j) of said binary data in a series of binary data representing the order index difference (Δo_n).

7. The method of claim 3, wherein a context for decoding a binary data being selected from a context table indexed by a context index (ctxIdx), and wherein the context index (ctxIdx) for a binary data (f_j) depends on a sensor index (λ^j) associated with the binary data (f_j).

8. The method of claim 3, a context for decoding a binary data being selected from a context table indexed by a context index (ctxIdx), and the context index (ctxIdx) for a binary data (f_j) depends on sensor packs regrouping sensors with close elevation angles.

9. An apparatus of encoding of encoding a point cloud into a bitstream of encoded point cloud data representing a physical object, points of the point cloud being ordered based on azimuthal angles representing capture angles of sensors and sensor indices associated with sensors, wherein the apparatus comprises one or more processors configured to encode, into a bitstream, at least one order index difference representing a difference between order indices of two consecutive ordered points by:

obtaining at least one binary data by binarizing the at least one order index difference; and

for each binary data, selecting a context based on a distance between an azimuthal angle associated with the binary data and an azimuthal angle of an already encoded point, and context-based entropy coding the binary data in the bitstream, based on the selected context.

10. An apparatus of decoding, from a bitstream, a point of a point cloud representing a physical object, wherein the apparatus comprises one or more processors configured to decode at least one order index difference representing a difference between order indices of two consecutive ordered points based on at least one binary data decoded from the bitstream, each binary data being decoded by:

selecting a context based on a distance between an azimuthal angle associated with the binary data and an azimuthal angle of an already decoded point;

context-based entropy decoding said at least one binary data based on the selected context and a probability information relative to the binary data decoded from the bitstream; and

decoding an order index difference from the at least one context-based entropy decoded binary data.

11. A bitstream of encoded point cloud data representing a physical object, wherein the bitstream comprises probability information relative to at least one binary data representing an order index difference representing a difference between order indices of two consecutive ordered points of the point cloud.

12. A computer program product including instructions which, when the program is executed by one or more processors, causes the one or more processors to carry out a method of encoding a point cloud into a bitstream of encoded point cloud data representing a physical object, points of the point cloud being ordered based on azimuthal angles representing capture angles of sensors and sensor indices associated with sensors, the method comprising encoding, into a bitstream, at least one order index difference representing a difference between order indices of two consecutive ordered points by:

obtaining at least one binary data by binarizing the at least one order index difference; and

for each binary data, selecting a context based on a distance between an azimuthal angle associated with the binary data and an azimuthal angle of an already

encoded point, and context-based entropy coding the binary data in the bitstream, based on the selected context.

13. A non-transitory storage medium carrying instructions of program code for executing a method of encoding a point cloud into a bitstream of encoded point cloud data representing a physical object, points of the point cloud being ordered based on azimuthal angles representing capture angles of sensors and sensor indices associated with sensors, the method comprising encoding, into a bitstream, at least one order index difference representing a difference between order indices of two consecutive ordered points by:

obtaining at least one binary data by binarizing the at least one order index difference; and

for each binary data, selecting a context based on a distance between an azimuthal angle associated with the binary data and an azimuthal angle of an already encoded point, and context-based entropy coding the binary data in the bitstream, based on the selected context.

14. A computer program product including instructions which, when the program is executed by one or more processors, causes the one or more processors to carry out a method of decoding, from a bitstream, a point of a point cloud representing a physical object, the method comprises decoding at least one order index difference representing a difference between order indices of two consecutive ordered points based on at least one binary data decoded from the bitstream, each binary data being decoded by:

selecting a context based on a distance between an azimuthal angle associated with the binary data and an azimuthal angle of an already decoded point;

context-based entropy decoding said at least one binary data based on the selected context and a probability information relative to the binary data decoded from the bitstream; and

decoding an order index difference from the at least one context-based entropy decoded binary data.

15. A non-transitory storage medium carrying instructions of program code for executing a method of decoding, from a bitstream, a point of a point cloud representing a physical object, the method comprises decoding at least one order index difference representing a difference between order indices of two consecutive ordered points based on at least one binary data decoded from the bitstream, each binary data being decoded by:

selecting a context based on a distance between an azimuthal angle associated with the binary data and an azimuthal angle of an already decoded point;

context-based entropy decoding said at least one binary data based on the selected context and a probability information relative to the binary data decoded from the bitstream; and

decoding an order index difference from the at least one context-based entropy decoded binary data.

16. An electronic device, comprising:

a processor; and

a memory for storing instructions executable by the processor;

wherein the processor is configured to encode a point cloud into a bitstream of encoded point cloud data representing a physical object, points of the point cloud being ordered based on azimuthal angles (ϕ_n) representing capture angles of sensors and sensor indices (λ_n) associated with sensors, wherein the processor is configured to encode, into a bitstream, at least one order index difference (Δo_n) representing a difference between order indices of two consecutive ordered points by:

obtaining at least one binary data (f_j) by binarizing the at least one order index difference (Δo_n); and

for each binary data, selecting a context based on a distance (C_j) between an azimuthal angle (ϕ^j) associated with the binary data and an azimuthal angle (ϕ_{penult}, ϕ_{al}) of an already encoded point, and context-based entropy coding (830) the binary data in the bitstream, based on the selected context.

17. The electronic device of claim 16, wherein the already encoded point is a penultimate already coded point (P_{penult}) with a same sensor index as a sensor index (λ^j) associated with the binary data (f_j).

18. An electronic device, comprising:

a processor; and

a memory for storing instructions executable by the processor;

wherein the processor is configured to decode a point cloud from a bitstream of encoded point cloud data representing a physical object, the processor is configured to decode at least one order index difference (Δo_n) representing a difference between order indices of two consecutive ordered points based on at least one binary data (f_j) decoded from the bitstream, each binary data (f_j) being decoded by:

selecting a context based on a distance (C_j) between an azimuthal angle (ϕ^j) associated with the binary data (f_j) and an azimuthal angle (ϕ_{penult}, ϕ_{al}) of an already decoded point;

context-based entropy decoding said at least one binary data based on the selected context and a probability information relative to the binary data decoded from the bitstream; and

decoding an order index difference (Δo_n) from the at least one context-based entropy decoded binary data (f_j).

19. The electronic device of claim 18, wherein the already decoded point is a penultimate already decoded point (P_{penult}) with a same sensor index as a sensor index (λ^j) associated with the binary data (f_j).

20. The electronic device of claim 18, wherein a context for decoding a binary data being selected from a context table indexed by a context index (ctxIdx), and wherein the context index for a binary data (f_j) equals the distance (C_j) between the azimuthal angle (ϕ^j) associated with the binary data (f_j)and an azimuthal angle (ϕ_{penult}, ϕ_{al}) of the already decoded point.