

Claims

1. **An encoding method** for encoding a 3-dimensional color Look-Up Table associated with octants of an octree, said method comprising:
 - 5 encoding a split flag for a current octant indicating whether at least one of its immediate child octants is recursively encoded;
encoding a second flag for the current octant indicating if at least one residue is encoded for a vertex in the current octant;
encoding the current octant responsive to the split flag and the second flag;
 - 10 wherein the step of encoding the current octant further comprises:
 - predicting a value of the vertex in the current octant from at least one reconstructed value of a neighboring vertex to obtain a prediction; and
 - encoding a residue computed as a difference between the value of the vertex and the prediction.
- 15 2. The encoding method according to claim 1, wherein the value of the vertex, and the at least one reconstructed value of the neighboring vertex are color values.
- 20 3. The encoding method according to claim 2, wherein the color values are representative of a color transform.
4. **A decoding method** for decoding a 3-dimensional color Look-Up Table of octants of an octree comprising:
 - 25 decoding a split flag for a current octant indicating whether at least one of its immediate child octants is recursively decoded;
decoding a second flag for the current octant indicating if at least one residue is encoded for a vertex in the current octant; and
reconstructing the current octant responsive to the split flag and the second
 - 30 flag;
 - wherein the step of reconstructing the current octant further comprises:
 - predicting a value of a vertex in the current octant from a reconstructed value of a neighboring vertex to obtain a prediction; and

reconstructing the value of the vertex from the prediction and a decoded residue.

5 5. The decoding method according to claim 4, wherein the value of the vertex, and the at least one reconstructed value of the neighboring vertex are color values.

6. The decoding method according to claim 5, wherein the color values are representative of a color transform.

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7. **An encoder** for encoding a 3-dimensional color Look-Up Table of octants comprising an interface for accessing the 3-dimensional color Look-Up Table of octants and at least a processor configured to:

15 encode a split flag for a current octant indicating whether at least one of its immediate child octants is recursively encoded;

encode a second flag for the current octant indicating if at least one residue is encoded for a vertex in the current octant; and

encode the current octant responsive to the split flag and the second flag;

wherein in the step to encode the current octant, it further comprises:

20 predicting a value of the vertex in the current octant from at least one reconstructed value of a neighboring vertex to obtain a prediction; and

encoding a residue computed as a difference between the value of the vertex and the prediction.

25 8. The encoder according to claim 7, wherein the value of the vertex, and the at least one reconstructed value of the neighboring vertex are color values.

9. The encoder according to claim 8, wherein the color values are representative of a color transform.

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10. **A decoder for** decoding a 3-dimension color Look-Up Table of octants comprising an interface for accessing a bitstream and at least one processor configured to:

decode a split flag for a current octant indicating whether at least one of its immediate child octants is recursively decoded;

decode a second flag for the current octant indicating if at least one residue is encoded for a vertex in the current octant; and

- 5 reconstruct the current octant responsive to the split flag and the second flag; wherein in the step to reconstruct the current octant, it further comprises:

 predicting a value of a vertex in the current octant from a reconstructed value of a neighboring vertex to obtain a prediction; and

- reconstructing the value of the vertex from the prediction and a decoded
10 residue.

11. The decoder according to claim 10, wherein the value of the vertex, and the at least one reconstructed value of said neighboring vertex are color values.

- 15 12. The decoder according to claim 11, wherein the color values are representative of a color transform.

13. **A bitstream representative** of a 3 dimensional color Look-Up Table of octants, said bitstream comprising, for a current octant, a split flag indicating
20 whether at least one immediate child octant is recursively encoded, a second flag indicating if at least one residue is encoded for a vertex in the current octant, and data for the current octant encoded responsive to the split flag and the second flag.

- 25 14. The bitstream according to claim 13, wherein the data encoded responsive to the split flag are representative of a residue computed between at least one value of a vertex of the current octant and a prediction obtained from at least one reconstructed value of a neighboring vertex.

- 30 15. **A transmission apparatus** comprising:
means for transmitting a split flag indicating whether at least one immediate child octant of a current octant is recursively encoded, and a second flag indicating if at least one residue is encoded for a vertex in the current octant;

means for transmitting data, for the current octant, encoded responsive to the split flag and the second flag; thereby providing a bitstream representative of a 3 dimensional color Look-Up Table of octants.

- 5 16. The transmission apparatus according to claim 15, wherein the data encoded responsive to the split flag are representative of a residue computed between at least one value of a vertex of the current octant and a prediction obtained from at least one reconstructed value of a neighboring vertex.