

CLAIMS

1. Method for compressing digital images, an initial digital image to be compressed being defined by at least one matrix of pixels having associated digital values, the method
5 being implemented by a programmable compression device (4) comprising at least one processor (16) and an electronic memory (14), characterized in that it comprises the steps, implemented by said processor (16), of:

- applying a semantic segmentation (60) to the initial digital image (20), making it possible to obtain a segmented image in which each pixel is associated with a semantic
10 class among a set of predetermined semantic classes (18) previously stored,

- obtaining (62, 68-72) of an image to be encoded from said segmented image, comprising the assignment of the same digital encoding value to all the pixels of the segmented image belonging to the same semantic class,

- compressing (64) the image to be encoded and obtaining a binary stream (30)
15 further comprising memorizing in a table an association between the semantic classes and digital encoding values and a transmission of said table to a decompression device.

2. The compression method according to claim 1, wherein the application (60) of semantic segmentation comprises the application of a deep learning algorithm based on
20 neural networks.

3. Compression method according to one of claims 1 or 2, further comprising a complementary segmentation (70) applied to the initial digital image (20), and a merger (72) between the image segmented by the application of semantic segmentation and the image
25 segmented by said complementary segmentation, the result of the merger being used for obtaining an image to be encoded.

4. Compression method according to claim 3, wherein said complementary segmentation (70) is contour-based segmentation.
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5. Compression method according to claim 1, in which, for at least one subset of pixels belonging to the same semantic class, the initial digital value of the spatially corresponding pixels of the initial digital image is copied from the initial digital image in the
35 image to be encoded.

6. Method for decompression of digital images compressed by a compression method according to claims 1 to 5, implemented by a programmable decompression device (6) comprising at least one processor (34) and an electronic memory (32), characterized in that it comprises steps implemented by said processor (34), of receiving a binary train and decompression (80) of said binary train to obtain a decoded digital image, comprising at least one set of pixels of the same value associated with a semantic class from among a set of predetermined semantic classes previously stored, and receiving a table comprising an association between the semantic classes and digital encoding values.

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7. Decompression method according to claim 6, further comprising a step of rendering (86) a textured decoded image, in which, for at least one subset of pixels associated with a semantic class, a attribution of new digital values to the pixels of said subset is carried out as a function of said semantic class.

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8. Decompression method according to claim 7, wherein the textured decoded image rendering step (86) implements an image generation algorithm based on neural networks.

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9. Computer program comprising software instructions which, when implemented by a programmable electronic device, implement a digital image compression method according to claims 1 to 5.

10. Computer program comprising software instructions which, when implemented by a programmable electronic device, implement a digital image decompression method according to claims 6 to 8.

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11. Device for compressing digital images, an initial digital image to be compressed being defined by at least one matrix of pixels having associated digital values, the compression device (4) being a programmable device comprising at least one processor (16). and an electronic memory (14), characterized in that said processor (16) is designed to implement:

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- a semantic segmentation module (22) designed to apply semantic segmentation to the initial digital image (20), making it possible to obtain a segmented image in which

each pixel is associated with a semantic class from among a set of predetermined semantic classes (18) previously memorized,

- a module (24) for obtaining an image to be encoded from said segmented image, configured to assign the same digital encoding value to all the pixels of the segmented
5 image belonging to the same semantic class,

- a module for compressing (26) the image to be encoded and obtaining a binary stream (30), the device for compressing digital images being further configured to memorize in a table an association between the semantic classes and digital encoding values and a transmit said table to a decompression device.

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12. Device for decompression of digital images compressed by a digital image compression device according to claim 11, said decompression device (6) being a programmable device comprising at least one processor (34) and an electronic memory (32). , said processor being characterized in that it is designed to implement a module for
15 receiving a binary train and a decompression module (36) designed to apply an algorithm for decompressing said binary train so as to obtain a decoded digital image, comprising at least one set of pixels of the same value associated with a semantic class from among a set of predetermined semantic classes previously stored, the device for decompression of digital images being further configured to receive a table comprising an association between
20 the semantic classes and digital encoding values.