

Claims:

1. An image processing method, comprising:

5 identifying a first object in a first video frame image and a second object located in the first object;

overlying a third object as a foreground image on the first video frame image in accordance with a position of the first object in the first video frame image, to obtain a second video frame image; wherein the third object overlays the first object in the second video frame image;

10 overlapping the second object as a foreground image on the third object of the second video frame image in accordance with a position of the second object in the first video frame image, to obtain a third video frame image,

wherein overlapping the second object as a foreground image on the third object of the second video frame image in accordance with the position of the second object in the first video frame image, to obtain a third video frame image comprises:

calculating a first distance between two key points preset on the first object;

calculating an offset of the second object based on the first distance;

15 overlapping the second object as a foreground image on the third object in the second video frame image in accordance with the position of the second object in the first video frame image and the offset of the second object, to obtain the third video frame image.

2. The image processing method of claim 1, wherein the identifying a first object in a first video frame image and a second object located in the first object comprises:

25 identifying a plurality of first key points of the first object and a plurality of second key points of the second object in the first video frame image;

identifying the first object based on the plurality of first key points of the first object;

identifying the second object based on the plurality of second key points of the second object, wherein the plurality of second key points are edge key points of the second object.

30 3. The image processing method of claim 2, wherein, the overlying a third object as a foreground image on the first video frame image in accordance with the position of the first object in the first video frame image, to obtain a second video frame image, comprises:

calculating an anchor point of the first object in the first video frame image based on the plurality of first key points of the first object in the first video frame image;

overlying the third object as a foreground image in the first video frame image by aligning an anchor point of the third object with the anchor point of the first object in the first video frame image, to obtain the second video frame image.

4. The image processing method of claim 1, wherein the calculating an offset of the second object based on the first distance comprises:

acquiring a yaw angle and a pitch angle of the first object, wherein the yaw angle is a horizontal angle between an orientation of the first object in the first video frame image and a lens shooting direction, and the pitch angle is a vertical angle between the orientation of the first object in the first video frame image and the lens shooting direction;

calculating the offset of the second object based on the first distance, the yaw angle and the pitch angle.

5. The image processing method of claim 1 or 4, wherein, the overlapping the second object as a foreground image on a third object in the second video frame image in accordance with the position of the second object in the first video frame image and the offset of the second object, to obtain the third video frame image, comprises:

performing position offset on an initial anchor point of the second object in the first video frame image in accordance with the offset of the second object, to obtain a target anchor point;

rendering the second object as a foreground image to a position of the target anchor point in the second video frame image, to obtain the third video frame image.

6. The image processing method of any of claims 1 to 5, further comprises, after obtaining the third video frame image:

converting color spaces of the second object and the third object in the third video frame image from a RGB color space to a HSV color space;

replacing a value of the second object in H channel in the HSV color space with a value of the third object in the H channel;

converting the color spaces of the second object and the third object from the HSV space

to the RGB color space to obtain a fourth video frame image.

7. An image processing apparatus, comprising:

an object identification module configured to identify a first object in a first video frame
5 image and a second object located in the first object;

a second video frame image generation module configured to overlay a third object as
a foreground image on the first video frame image in accordance with a position of the first
object in the first video frame image, to obtain a second video frame image; wherein the third
object overlays the first object in the second video frame image;

10 a third video frame generation module configured to overlap the second object as a
foreground image on the third object of the second video frame image in accordance with a
position of the second object in the first video frame image, to obtain a third video frame
image,

wherein the third video frame image generation module is further configured to:

15 calculate a first distance between two key points preset on the first object;

calculate an offset of the second object based on the first distance;

overlap the second object as a foreground image on the third object in the second video
frame image in accordance with the position of the second object in the first video frame
image and the offset of the second object, to obtain the third video frame image.

20 8. The image processing apparatus of claim 7, wherein the object identification module
is further configured to:

identify a plurality of first key points of the first object and a plurality of second key
points of the second object in the first video frame image;

25 identify the first object based on the plurality of first key points of the first object;

identify the second object based on the plurality of second key points of the second
object, wherein the plurality of second key points are edge key points of the second object.

30 9. The image processing apparatus of claim 8, wherein the second video frame image
generation module is further configured to:

calculate an anchor point of the first object in the first video frame image based on the
plurality of first key points of the first object in the first video frame image;

overlay the third object as a foreground image in the first video frame image by aligning an anchor point of the third object with the anchor point of the first object in the first video frame image, to obtain the second video frame image.

5 10. The image processing apparatus of claim 7, wherein the third video frame image generation module is further configured to:

acquire a yaw angle and a pitch angle of the first object, wherein the yaw angle is a horizontal angle between an orientation of the first object in the first video frame image and a lens shooting direction, and the pitch angle is a vertical angle between the orientation of
10 the first object in the first video frame image and the lens shooting direction;

calculate the offset of the second object based on the first distance, the yaw angle and the pitch angle.

11. The image processing apparatus of claim 7 or 10, wherein the third video frame
15 image generation module is further configured to:

perform position offset on an initial anchor point of the second object in the first video frame image in accordance with the offset of the second object to obtain a target anchor point;

render the second object as a foreground image to the position of the target anchor point in the second video frame image, to obtain the third video frame image.

20 12. The image processing apparatus of any of claim 7 to 11, wherein the image processing device further comprises:

a fourth video image generation module configured to convert color spaces of the second object and the third object in the third video frame image to a HSV color space from
25 a RGB color space; replace a value of the second object in H channel in the HSV color space with a value of the third object in the H channel; and convert the color spaces of the second object and the third object from the HSV space to the RGB color space to obtain a fourth video frame image.

30 13. An electronic device, comprising:

a memory for storing computer readable instructions; and

a processor for executing the computer readable instructions, so that the processor,

when executing the computer readable instructions, implements the image processing method of any of claims 1-6.

5 14. A non-transitory computer readable storage medium for storing computer readable instructions which, when executed by a computer, cause the computer to execute the image processing method of any of claims 1-6.

15. A computer program, wherein when the computer program is executed by a computer, the computer executes the image processing method of any of claims 1-6.

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