

CLAIMS

1. An audio processing method, comprising:

acquiring an original image captured by a terminal;

determining a three-dimensional relative position of a target object relative to the terminal as a first three-dimensional relative position according to the original image; and

performing three-dimensional effect processing on a target sound according to the first three-dimensional relative position to enable a sound source position of the target sound in audio obtained after the three-dimensional effect processing and the first three-dimensional relative position to conform to a positional relationship between the target object and a sound effect object corresponding to the target object, wherein the target sound is an effect sound corresponding to the sound effect object;

wherein the sound effect object is in a different position as the target object, and the performing the three-dimensional effect processing on the target sound according to the first three-dimensional relative position to enable the sound source position of the target sound in the audio obtained after the three-dimensional effect processing and the first three-dimensional relative position to conform to the positional relationship between the target object and the sound effect object corresponding to the target object comprises:

determining the three-dimensional relative position of the sound source position of the target sound relative to the terminal as a second three-dimensional relative position according to the first three-dimensional relative position and the positional relationship between the target object and the sound effect object corresponding to the target object; and

performing three-dimensional effect processing on the target sound according to the second three-dimensional relative position to enable a sound source position of the target sound in audio obtained after the three-dimensional effect processing and the first three-dimensional relative position to conform to the positional relationship between the target object and the sound effect object corresponding to the target object.

2. The method according to claim 1, wherein the determining the three-dimensional relative position of the target object relative to the terminal as the first three-dimensional relative position according to the original image comprises:

performing feature extraction on the original image to acquire first anchor point information in the original image;

determining, according to pre-stored reference anchor point information corresponding to the target object, whether the first anchor point information is capable of matching the reference anchor point information; and

if it is determined that the first anchor point information matches the reference anchor point information, determining the three-dimensional relative position of the target object relative to the terminal as the first three-dimensional relative position according to the first anchor point information.

3. The method according to claim 1, wherein the determining the three-dimensional relative position of the target object relative to the terminal as the first three-dimensional relative position according to the original image comprises:

if second anchor point information generated from an anchor point marking operation performed by a user on the original image is acquired, determining the three-dimensional relative position of the target object relative to the terminal as the first three-dimensional relative position according to the second anchor point information.

4. The method according to claim 1, wherein the determining the three-dimensional relative position of the target object relative to the terminal as the first three-dimensional relative position according to the original image comprises:

if the target object does not exist in the original image, acquiring historical motion trajectory information corresponding to the target object, wherein the historical motion trajectory information is obtained by performing motion tracking on an image captured by the terminal before the original image is acquired; and

determining the three-dimensional relative position of the target object relative to the terminal as the first three-dimensional relative position according to the historical motion trajectory information.

5. The method according to claim 1, further comprising:

acquiring additional description information of the target sound, wherein the additional description information comprises at least one of a sound source sounding area of the target sound, a sound source reverberation effect of the target sound and a sound source environment of the target sound;

the performing the three-dimensional effect processing on the target sound according to the second three-dimensional relative position to enable the sound source position of the target sound in the audio obtained after the three-dimensional effect

processing and the first three-dimensional relative position to conform to the positional relationship between the target object and the sound effect object corresponding to the target object, comprises:

performing the three-dimensional effect processing on the target sound according to the second three-dimensional relative position and the additional description information to enable the sound source position of the target sound in the audio obtained after the three-dimensional effect processing and the first three-dimensional relative position to conform to the positional relationship between the target object and the sound effect object corresponding to the target object.

6. The method according to any one of claims 1 to 5, further comprising:

superimposing image material corresponding to the target object to the first three-dimensional relative position of the original image to generate an augmented reality, AR, image corresponding to the original image; and

displaying the AR image.

7. The method according to any one of claims 1 to 6, further comprising:

determining whether the terminal meets an ambisonic playing condition; and

if it is determined that the terminal meets the ambisonic playing condition, playing the audio obtained after the three-dimensional effect processing.

8. An audio processing apparatus, comprising:

a first acquiring module, configured to acquire an original image captured by a terminal;

a first determining module, configured to determine a three-dimensional relative position of a target object relative to the terminal as a first three-dimensional relative position according to the original image; and

an audio processing module, configured to perform three-dimensional effect processing on a target sound according to the first three-dimensional relative position to enable a sound source position of the target sound in audio obtained after the three-dimensional effect processing and the first three-dimensional relative position to conform to a positional relationship between the target object and a sound effect object corresponding to the target object, wherein the target sound is an effect sound corresponding to the sound effect object;

wherein the sound effect object is in a different position as the target object, and the first determining module is further configured to determine the three-dimensional relative position of the sound source position of the target sound relative to the terminal

as a second three-dimensional relative position according to the first three-dimensional relative position and the positional relationship between the target object and the sound effect object corresponding to the target object; and

the audio processing module is further configured to perform three-dimensional effect processing on the target sound according to the second three-dimensional relative position to enable a sound source position of the target sound in audio obtained after the three-dimensional effect processing and the first three-dimensional relative position to conform to the positional relationship between the target object and the sound effect object corresponding to the target object.

9. The audio processing apparatus according to claim 8, wherein the first determining module comprises:

a first acquiring submodule, configured to perform feature extraction on the original image to acquire first anchor point information in the original image;

a determining submodule, configured to determine, according to pre-stored reference anchor point information corresponding to the target object, whether the first anchor point information is capable of matching the reference anchor point information; and

a first determining submodule, configured to determine the three-dimensional relative position of the target object relative to the terminal as the first three-dimensional relative position according to the first anchor point information if it is determined that the first anchor point information matches the reference anchor point information.

10. The audio processing apparatus according to claim 8, wherein the first determining module comprises:

a second determining submodule, configured to determine the three-dimensional relative position of the target object relative to the terminal as the first three-dimensional relative position according to second anchor point information if the second anchor point information generated from an anchor point marking operation performed by a user on the original image is acquired.

11. The audio processing apparatus according to claim 8, wherein the first determining module comprises:

a second acquiring submodule, configured to acquire historical motion trajectory information corresponding to the target object if the target object does not exist in the original image, where the historical motion trajectory information is obtained by performing motion tracking on an image captured by the terminal before the original

image is acquired; and

a third determining submodule, configured to determine the three-dimensional relative position of the target object relative to the terminal as the first three-dimensional relative position according to the historical motion trajectory information.

12. A computer readable storage medium having a computer program stored thereon, wherein the program, when executed by a processing apparatus, implements steps of the method of any one of claims 1 to 7.

13. An electronic device, comprising:

a storage apparatus, having a computer program stored thereon; and

a processing apparatus, configured to execute the computer program in the storage apparatus to implement steps of the method of any one of claims 1 to 7.

14. A computer program product, comprising a computer program which, when executed by a processing apparatus, implements steps of the method of any one of claims 1 to 7.