

CLAIMS

1. A method for generating a special effect program file package, comprising:
 - importing a sub-material;
 - obtaining a parameter value of a playback parameter of the sub-material, and establishing a correspondence between a display position of the sub-material and at least one predetermined key point; and
 - generating a special effect program file package executable by a rendering engine according to the sub-material, the correspondence, and the parameter value, wherein the special effect program file package is used for generating a special effect of the sub-material on a video.
2. The method according to claim 1, wherein importing the sub-material, comprises:
 - receiving an import instruction sent through an interaction interface of an operation bar, and importing the sub-material of a material file folder to which the import instruction is directed.
3. The method according to claim 2, wherein receiving the import instruction sent through the interaction interface of the operation bar, and importing the sub-material of the material file folder directed by the import instruction, comprises:
 - receiving the import instruction sent through the interaction interface in a special effect parameter setting interface of the operation bar, and importing the sub-material of the material file folder to which the import instruction is directed; or
 - receiving a selection instruction sent through the interaction interface of the operation bar, using a reference part selected by the selection instruction as a target part in which a special effect is presently to be added, and displaying the special effect parameter setting interface of the target part at the operation bar; and receiving the import instruction sent through the interaction interface in the special effect parameter setting interface, and importing the sub-material of the material file folder to which the import instruction is directed.

4. The method according to claim 2 or 3, wherein receiving the import instruction sent through the interaction interface, and importing the sub-material of the material file folder to which the import instruction is directed, comprises:

receiving the import instruction sent through the interaction interface, and obtaining and displaying the material file folder to which the import instruction is directed;

in response to that the sub-material selection operation on the material file folder is received, importing the sub-material selected by a sub-material selection operation; and/or,

in response to that the sub-material selection operation on the material file folder is not received, selecting at least one sub-material in the material file folder according to a preset setting and importing the at least one sub-material selected according to the preset setting.

5. The method according to any one of claims 1 to 4, wherein the key point comprises at least one of: a head key point, a face key point, a shoulder key point, an arm key point, a gesture key point, a waist key point, a leg key point, a foot key point, or a body skeleton key point.

6. The method according to any one of claims 1 to 5, wherein establishing the correspondence between the display position of the sub-material and the at least one predetermined key point, comprises:

establishing the correspondence between the display position of the sub-material and the at least one key point; and/or,

establishing a correspondence between the display position of the sub-material and a central key point of a detection box.

7. The method according to any one of claims 3 to 6, wherein obtaining the parameter value of the playback parameter of the sub-material, comprises:

in response to that the parameter value set for the playback parameter of the sub-material sent through the interaction interface in the special effect parameter setting interface is received, using the set parameter value as the parameter value of the playback parameter of the sub-material; and/or,

in response to that the parameter value set for the playback parameter of the

sub-material sent through the interaction interface in the special effect parameter setting interface is not received, using a preset parameter value as the parameter value of the playback parameter of the sub-material.

8. The method according to any one of claims 1 to 7, wherein the playback parameter comprises at least one of the following:

- a display parameter, for representing whether to display the sub-material;

- a trigger action parameter, for representing a trigger action for triggering the sub-material display;

- a loop parameter, for representing a number of loop playback times for the sub-material;

- a delay trigger parameter, for representing time for delay displaying of the sub-material;

- a trigger stop parameter, for representing an action for stopping the sub-material display;

- a display size parameter, for representing reference basis of display size changes of the sub-material;

- a position type parameter, for representing a relationship type between the sub-material and the position;

- a position relation type parameter, for representing whether the sub-material moves with a preset reference part;

- a position parameter, for representing a position binding relationship between the sub-material and a preset key point; and

- a rotate parameter, for representing a key point around which the sub-material is rotated, wherein a trigger action corresponding to the trigger action parameter comprises at least one of: no action for trigger, an eye action, a head action, an eyebrow action, a hand action, a mouth action, or a shoulder action,

- wherein the position type parameter comprises any one of:

- a parameter for representing a foreground;

- a parameter for representing locating and/or moving of the sub-material with a face position;

- a parameter for representing locating and/or moving of the sub-material with a hand position;

- a parameter for representing locating and/or moving of the sub-material with a

head position; a parameter for representing locating and/or moving of the sub-material with a shoulder position;

a parameter for representing locating and/or moving of the sub-material with an arm position;

a parameter for representing locating and/or moving of the sub-material with a wrist position;

a parameter for representing locating and/or moving of the sub-material with a leg position;

a parameter for representing locating and/or moving of the sub-material with a foot position;

a parameter for representing locating and/or moving of the sub-material with a body skeleton position;

a playback position relationship related to the reference part; and

a parameter for representing a background,

wherein the playback position relationship related to the reference part comprises at least one of the following:

the sub-material moving with the position of the reference part, and the sub-material scaling with the size of the reference part;

the sub-material moving with the position of the reference part, the sub-material scaling with the size of the reference part, and the sub-material depth scaling with the rotation of the reference part; or

the sub-material moving with the position of the reference part, the sub-material scaling with the size of the reference part, the sub-material depth scaling with the rotation of the reference part, and the sub-material rotating with the plane rotation of the reference part.

9. The method according to any one of claims 1 to 8, further comprising:

displaying a reference image by using a content display bar, and displaying key points of the reference image, wherein the reference image comprises at least one reference part,

wherein the reference image comprises: at least one part of images of a reference character,

wherein the at least one part of images of the reference character comprises at least one image of the following: a complete image, a head image, a face image, a

shoulder image, an arm image, a gesture image, a wrist image, a leg image, or a foot image.

10. The method according to claim 9, wherein after importing the sub-material, the method further comprises:

displaying the imported sub-material in the content display bar according to the parameter value of the playback parameter of the sub-material; or

according to a position movement operation for the sub-material received in the content display bar, updating a display position of the sub-material in the content display bar and updating the corresponding parameter value in the playback parameter of the sub-material; or

according to a size adjustment operation for the sub-material received in the content display bar, updating a display size of the sub-material in the content display bar and updating the corresponding parameter value in the playback parameter of the sub-material.

11. The method according to any one of claims 1 to 10, further comprising:

adjusting a shielding relationship between two or more sub-materials according to a layer parameter adjustment instruction sent for the two or more sub-materials received through the interaction interface of the operation bar, and displaying the two or more sub-materials according to the adjusted shielding relationship and the parameter value of the playback parameter.

12. The method according to any one of claims 1 to 11, wherein before generating the special effect program file package, the method further comprises:

generating, according to a preset special effect program file and the parameter value of the playback parameter of the sub-material, a special effect program file of the sub-material, and displaying the special effect program file of the sub-material by using a program file bar.

13. The method according to any one of claims 1 to 12, further comprising:

starting, upon receiving a start instruction, and displaying an operation interface, wherein the operation interface comprises: an operation bar, a content display bar, and/or a program file bar,

wherein the operation interface comprises three regions on left, middle, and right; and

the displaying the operation interface comprises:

displaying the operation bar at the left region of the operation interface, displaying the content display bar at the middle region of the operation interface, and displaying the program file bar at the right region of the operation interface.

14. The method according to any one of claims 1 to 13, wherein after generating the special effect program file package, the method further comprises:

storing, upon reception of a storage instruction, the special effect program file package at a position to which the storage instruction is directed.

15. The method according to claim 14, wherein storing, upon reception of the storage instruction, the special effect program file package at the position to which the storage instruction is directed, comprises:

in response to reception of the storage instruction, displaying a storage path selection interface and a compression interface;

receiving a storage position sent through the storage path selection interface; and receiving a compression mode sent based on the compression interface, and compressing, according to the compression mode, the special program file package of the sub-material and generating a compression file package; and

storing the compression file package in a file folder to which the storage position is directed.

16. A method for generating a special effect, comprising:

importing a special effect program file package executable by a rendering engine;

obtaining a parameter value of a playback parameter of a sub-material in the special effect program file package;

performing key point detection on a video image; and

generating a special effect of the sub-material on the video image based on the detected key point and the parameter value of the playback parameter.

17. The method according to claim 16, wherein the special effect program file package comprises a sub-material and the parameter value of the playback parameter of the sub-material, and a correspondence between a display position of the sub-material and at least one predetermined key point.

18. The method according to claim 16 or 17, wherein importing the special effect program file package, comprises:

- reading the special effect program file package into an internal storage by calling a first interface function used for reading a sticker material; and

- parsing the special effect program file package, and obtaining the sub-material and a special effect program file, the special effect program file comprising the parameter value of the playback parameter of the sub-material.

19. The method according to claim 18, wherein obtaining the parameter value of the playback parameter of the sub-material in the special effect program file package, comprises:

- creating a sticker handle by using a second interface function used for creating a sticker handle; and

- reading the sub-material and the parameter value of the playback parameter in the special effect program file and storing into the sticker handle; or

- obtaining, according to the parameter value of the playback parameter in the special effect program file in the sticker handle, the position and video frame number of the sub-material displayed in the video, and previously reading a video image corresponding to the video frame number from the video.

20. The method according to claim 19, wherein generating the special effect of the sub-material on the video image based on the detected key point and the parameter value of the playback parameter, comprises:

- reading, by calling a third interface function used for rendering a sticker material, from the sticker handle the sub-material to be displayed on a present video image of the video;

- according to the detected key point and the parameter value of the playback parameter of the sub-material to be displayed on the present video image, determining a playback state and a display position of the sub-material to be displayed on the present

video image; and

according to the playback state of the sub-material to be displayed on the present video image, displaying the sub-material to be displayed on the present video image on the display position of the present video image.

21. The method according to any one of claims 17 to 20, wherein performing the key point detection on the video image, comprises:

performing, by using a neural network, key point detection related to the correspondence on the video image and outputting a key point detection result,

wherein the key point detection result comprises at least one of the following:

a position of the key point related to the correspondence in the image of the video; or

a preset serial number of the key point related to the correspondence.

22. An apparatus for generating a special effect program file package, comprising:

a first import module, configured to import a sub-material;

a first obtaining module, configured to obtain a parameter value of a playback parameter of the sub-material, and establish a correspondence between a display position of the sub-material and at least one predetermined key point; and

a first generation module, configured to generate a special effect program file package executable by a rendering engine according to the sub-material, the correspondence, and the parameter value, wherein the special effect program file package is used for generating a special effect of the sub-material on a video.

23. An apparatus for generating a special effect, comprising:

a second import module, configured to import a special effect program file package executable by a rendering engine;

a second obtaining module, configured to obtain a parameter value of a playback parameter of a sub-material in the special effect program file package;

a key point detection module, configured to perform key point detection on a video image; and

a second generation module, configured to generate a special effect of the sub-material on the video image based on the detected key point and the parameter value of the playback parameter.

24. An electronic device, comprising:

a memory, configured to store computer programs; and

a processor, configured to execute the computer programs stored in the memory, wherein the processor, upon execution of the computer programs, is configured to:

import a sub-material; obtain a parameter value of a playback parameter of the sub-material and establish a correspondence between a display position of the sub-material and at least one predetermined key point; and generate a special effect program file package executable by a rendering engine according to the sub-material, the correspondence and the parameter value, wherein the special effect program file package is used for generating a special effect of the sub-material on a video, or

import a special effect program file package executable by the rendering engine; obtain a parameter value of a playback parameter of a sub-material in the special effect program file package; perform key point detection on a video image; and generate a special effect of the sub-material on the video image based on the detected key point and the parameter value of the playback parameter.

25. A computer readable storage medium, having computer programs stored thereon, wherein the computer programs, when being executed by a processor, causes the processor to implement the method according to any of claims 1 to 21.