

METHOD, SYSTEM AND MEDIA PLAYER FOR GENERATING GIF IMAGES

Technical Field

The present invention is in the field of data processing, and particularly involves a method, system and media player for generating GIF images.

The Background of the Invention

At present, watching videos through a media player has become a popular recreation of users in their study, leisure and entertainment time. When watching a video, a user usually wishes to save a segment in local or share the segment with other users. Essential media player software generally all supports a video screenshot function which cuts off a frame being played and saves the frame as a JPG or BMP file. Such operation's defect is that it can only save a single picture but not a video segment.

One character of Graphics Interchange Format (GIF) is that there may be more than one color image saved in one GIF file, so that a simple animation can be presented when more than one image saved in one file is read out and displayed on a screen one by one. Currently, almost all the software related supports GIF, and there is a lot of software using GIF image files in public areas.

A well-known method for converting video data to GIF files is to cut off frames of interested video segment through the media player, save the frame as several individual pictures, and then make these pictures into a GIF file using a particular GIF file editing tool. This method requires that the user installs a particular GIF file editing tool separately and is able to use the GIF file editing tool, so that its operation procedure is complicated and is not convenient for the user.

Summary of the Invention

Embodiments of the present invention are to provide a method for generation GIF files in order to solve the problem in the prior art that the user has to install a particular GIF file editing tool, the operation procedure is complicated and it is not convenient for the user.

The embodiments of the present invention are implemented as a method for generating GIF files, including the following steps of:

- receiving one or more GIF generation parameters configured by a user;

- upon receiving a GIF generation instruction from the user, stopping playing a media file, and capturing one or more video frames of the media file as one or more individual images according to the one or more GIF generation parameters configured by the user;
- and,

- encoding the one or more individual images and generating a target GIF file according to the one or more GIF generation parameters configured by the user.

Another object of the embodiments of the present invention is to provide a system for generating GIF files, including:

- a GIF parameter controlling module, to receive one or more GIF generation parameters configured by a user;

- a video frame capture module, to, upon receiving a GIF generation instruction from the user, stop playing a media file and capture one or more video frames of the media file as one or more individual images according to the one or more GIF generation parameters configured by the user; and,

- a GIF encoding module, to encode the one or more individual images and generate a target GIF file according to the one or more GIF generation parameters configured by the user.

Another object of the embodiments of the present invention is to provide a media player, including: a video post-processing unit to perform video processing on decoded video data, and the media player further including: a GIF generation subsystem, to capture and generate a target GIF file from the video data on which the video processing is performed by the video post-processing unit.

In the embodiments of the present invention, video contents of the media file are captured according a GIF generation parameter configured by the user to generate the target GIF file, and the user is not needed to install a dedicated GIF file editing tool and learn how to use it, thus the operation procedure is simplified and it is convenient for the user's usage.

Brief Description of Drawings

Figure 1 is a flow chart of the method for generating GIF files provided by an embodiment of the present invention;

Figure 2 is specific flow chart of the method for generating GIF files provided by one embodiment of the present invention;

Figure 3 is a diagram shown a UI interface for generating GIF files provided by an embodiment of the present invention;

Figure 4 is a diagram showing a structure of a media player provided by an embodiment of the present invention; and,

Figure 5 is a diagram showing a structure of a GIF generation subsystem provided by an embodiment of the present invention.

Embodiments of the Invention

To make objects, technical solutions and advantages of the present invention more clear and understandable, the present invention is further described in details in combination with accompanying drawings and embodiments hereinafter. It should be understood that the specific embodiments described herein are just for interpreting the present invention but not for limiting the present invention.

In the embodiments of the present invention, video contents are captured according to a GIF generation parameter configured by the user during playing a media file to generate a target GIF file, so that it is convenient for the user.

Figure 1 shows a process for implementing the method for generating GIF files provided by an embodiment of the present invention, which is discussed in details as follows:

In Step S101, a GIF generation parameter configured by a use is received.

In order to provide satisfied GIF files for the user, the user is permitted to configure related GIF generation parameters in the process of generating the target GIF file. In an embodiment of the present invention, the following GIF generation parameters may be provided for the user's configuration:

1. Origination of video capture, which defines the originating video frame selected to be captured;
2. Capture length, which defines a video length to be captured, whereby a segment

of video after the origination of video capture is captured as a GIF file, and the termination of the video length is the termination of video capture;

3. Frame interval, which defines for how long one frame is captured from the video, so that when a different frame interval is adopted, the number of the video frames captured will be different; and,

4. GIF playing speed, which defines the speed of playing the target GIF file generated.

In one embodiment of the present invention, the user is also permitted to configure image processing parameters in the GIF generation parameters to process the generated target GIF file. For example:

1. GIF resolution, which defines the maximum dimensions of the generated GIF file, such as 320*240, 200*150, or other various normal resolutions; and,

2. Image quality, which defines the image quality of the generated GIF file, so that when a different image quality is adopted, the number of the video frames captured will be different.

In addition, the user is permitted to configure a fingerprint image parameter in order to facilitate the user's identifying the generated GIF file. The fingerprint image is a picture added to the target GIF file to identify a certain meaning, such as a software identifier or etc. The fingerprint image is optional and may be in a form of a Portable Network Graphic (PNG) Format file.

In view of factors such as user experiences, operation habits, software transfer or etc., in an embodiment of the present invention, some GIF generation parameters may be configured as being configurable by the user while some other GIF generation parameters may be configured as being configurable by the user; and the configuration modes of different GIF generation parameters may be different, wherein, the origination of video capture, the capture length, the frame interval, the GIF resolution and image quality are needed to be configured before generation of the target GIF file, while the GIF playing speed may be configured after the generation of the GIF file and may be reconfigured during a preview play.

In Step S102, playing of the media file is stopped upon receiving an instruction of generating a GIF file from the user, and video frame(s) of the media file is(are) captured as one or more individual images according to the GIF generation parameters configured by the user.

In Step S103, if the user has configured image processing parameter such as a GIF resolution, image quality and so on, image processing is performed on the captured individual image(s) according to the image processing parameters configured by the user so as to change the GIF resolution, improve the image quality or etc.

In Step S104, if the user has configured a fingerprint image, the fingerprint image is added to each individual image.

In Step S105, the individual image(s) is(are) encoded according to the GIF generation parameters configured by the user, and a target GIF file is generated.

In Step S106, the target GIF file is outputted and saved.

Figure 2 shows a specific procedure for implementing the method for generating GIF files provided by one embodiment of the present invention. The detailed description is as follows:

In Step S201, a GIF capture instruction inputted by the user is received. As shown in Figure 3, the user may select a GIF capture function key on the User Interface (UI) of the media player to input the GIF capture instruction.

In Step S202, the media player pauses the player of the current video, obtains the GIF generation parameter configured by the user such as the origination of video capture, the capture length, the frame interval, the GIF resolution and so on. The user may configure the GIF generation parameters on a configuration interface popped by the media player and browse the effect of the image with the configuration.

In Step S203, each frame of image is captured from video data according the frame interval configured by the user, and is saved in a memory. After the capture, there are several frames of individual images saved in the memory.

In Step S204, if the user has configured the image processing parameters, image processing will be performed on each individual image captured according to the GIF generation parameters configured by the user, including modifying the dimensions of the image, changing the image quality or etc.

In Step S205, whether the user determines to load a fingerprint image is judged, Step S206 is executed if it is judged that the user determines to load the fingerprint image, and otherwise, Step S207 is executed.

In Step S206, the fingerprint image is loaded and is added to each captured frame of individual image.

In Step S207, the multiple individual images are encoded according to a

system-default parameter of GIF playing speed, and a target GIF file is generated.

In Step S208, the generated target GIF file is loaded to the memory.

When the user needs to preview the effect of the captured GIF file, Step S209 is executed to analyze and play the target GIF file in the memory.

When the user previews the playing effect of the generated target GIF file, the playing speed may be adjusted, whereby, in Step S210, whether the user is to adjust the playing speed is determined, Step S211 is executed if it is determined that the user is to adjust the playing speed, and otherwise, Step S212 is executed.

In Step S211, the playing speed of the target GIF file in the memory is adjusted according to the parameter of GIF playing speed adjusted by the user, and Step S209 is executed again.

In Step S212, whether the user is to adjust the GIF generation parameters such as the origination of video capture, the capture length, the GIF resolution and the like is determined, if it is determined that the user is to adjust such GIF generation parameters, Step S203 is executed according to the GIF generation parameters adjusted by the user, and otherwise, Step S213 is executed.

In Step S213, an instruction of saving the target GIF file is received from the user, and the final playing speed is written back to the target GIF file originally generated.

In one embodiment of the present invention, after the generation of the target GIF file, the target GIF file may be copied to a clipboard automatically, so that the user may use the target GIF file to perform various operations, for instance, directly pasting the target GIF file to a chatting window of a instant messaging system for transferring, or providing the user with a shortcut key to directly add the GIF file generated to a chatting emoticon of the instant messaging system.

Figure 4 shows a structure of a media player provided by an embodiment of the present invention, wherein, only components related to the embodiment of the present invention are shown for the convenience of description.

A file analyzing unit 41 analyzes the format of the media file inputted to determine the encoding format of the media file.

An audio/video separating and decoding unit 42 separates audio data and video data from the media file and decodes the audio data and the video data according to the encoding format obtained by the file analyzing unit 41.

A video post-processing unit 43 performs video processing on the decoded video

data such as image rotating, image highlight or the like.

An audio post-processing unit 44 performs audio processing on the decoded audio data such as de noising, balance or the like.

A rendering unit 45 performs rendering processing on the audio data and video data after post-processing and outputting them to devices such as an audio card, a video card or the like for playing.

In an embodiment of the present invention, the video data capture and the target GIF file's generation is mainly accomplished after the decoding of the video during media playback and before the video data are rendered and the outputted during the media playback. Therefore, a GIF generation function may be integrated in the media player. In one embodiment of the present invention, a GIF generation subsystem 431 may be integrated in the video post-processing unit 43 to capture video data and generate a target GIF file according to GIF generation parameters configured by the user. Of course, the GIF generation subsystem 431 may be not integrated in the video post-processing unit 43 but be an independent function unit in the media player.

For the convenience of the user's browsing the generated target GIF file, a GIF playing unit 46 may be added to the media player to analyze and play the generated target GIF file. Certainly, the GIF playing unit 46 may be not integrated in the media player, for instance, an independent playing tool for the target GIF file may be adopted for browsing.

Figure 5 shows a structure of the GIF generation subsystem provided by an embodiment of the present invention. Only components related to the embodiment of the present invention are illustrated for the convenience of description.

A GIF parameter controlling module 51 receives GIF generation parameters configured by the user from a user interface, the GIF generation parameters may include an origination of video capture, a capture length, a frame interval and a playing speed, and may further include a image processing parameter or a fingerprint image. These GIF generation parameters can make effects on the target GIF file to be generated.

During playing of the media file, upon a video frame capture module 52 receiving a GIF generation instruction from the user, the playing of the media file is stopped, and video frame(s) therein are captured as individual image(s) according to the GIF generation parameters configured by the user such as the capture origination and termination of video contents, the frame interval and the like.

In an embodiment of the present invention, when the user configures image

processing parameters such as a GIF resolution, an image quality and the like, an individual image processing module 53 process each individual image according to the image processing parameters configured by the user, including changing the GIF resolution and the image quality and the like.

In one embodiment of the present invention, when the user needs to add a fingerprint image to the target GIF file, a fingerprint image adding module 54 adds the fingerprint image inputted by the user or configured in advance to each individual image.

A GIF encoding module 55 encodes each captured individual image and generates the target GIF file according to the GIF generation parameters configured by the user.

A target GIF file saving module 56 outputs the generated target GIF file for saving.

In the embodiments of the present invention, the target GIF file is generated by capturing video contents of the media file according to the GIF generation parameters configured by the user, so that the user need not install and learn how to use a dedicated GIF file editing tool, thus the operation procedure is simplified and it is convenient for the user's usage. The user may also conveniently preview the generated target GIF file to adjust the target GIF file according to the situation previewed. In addition, the user may also paste the target GIF file to the chatting window of the instant messaging system for transferring or add it to the chatting expression of the instant messaging system to enhance communication interests of the user.

The aforementioned is just the preferred embodiments of the present invention, and is not for limiting the present invention. Any modifications, equivalents, improvements and the like made within the spirit and principle of the present invention should be encompassed in the scope of the present invention.

Claims

1. A method for generating GIF files, characterized in that, the method comprises the following steps of:

receiving one or more GIF generation parameters configured by a user;

upon receiving a GIF generation instruction from the user, stopping playing a media file, and capturing one or more video frames of the media file as one or more individual images according to the one or more GIF generation parameters configured by the user; and,

encoding the one or more individual images and generating a target GIF file according to the one or more GIF generation parameters configured by the user.

2. The method of claim 1, characterized in that, the method further comprises: saving the target GIF file.

3. The method of claim 1, characterized in that, the one or more GIF generation parameters comprise an origination of video capture, a capture length, a frame interval and a playing speed.

4. The method of claim 1, characterized in that, the one or more GIF generation parameters comprise one or more image processing parameters; and,

before encoding the one or more individual images and generating the target GIF file, the method further comprises the following steps:

performing image processing on the one or more individual images according to the one or more image processing parameters configured by the user.

5. The method of claim 1, characterized in that, the one or more GIF generation parameters comprise a fingerprint image; and,

the method further comprises the following steps before the step of encoding the one or more individual images and generating the target GIF file:

adding the fingerprint image configured by the user to each individual image.

6. A system for generating GIF files, characterized in that, the system comprises:

a GIF parameter controlling module, to receive one or more GIF generation parameters configured by a user;

a video frame capture module, to, upon receiving a GIF generation instruction from the user, stop playing a media file and capture one or more video frames of the media file

as one or more individual images according to the one or more GIF generation parameters configured by the user; and,

a GIF encoding module, to encode the one or more individual images and generate a target GIF file according to the one or more GIF generation parameters configured by the user.

7. The system of claim 6, characterized in that, the system further comprises:

a GIF file saving module, to save the target GIF file.

8. The system of claim 6, characterized in that, the one or more GIF generation parameters comprise an origination of video capture, a capture length, a frame interval and a playing speed.

9. The system of claim 6, characterized in that, the one or more GIF generation parameters comprise one or more image processing parameters; and, the system further comprises:

an image processing module, to perform image processing on the one or more individual images according to the one or more image processing parameters configured by the user.

10. The system of claim 6, characterized in that, the one or more GIF generation parameters comprise a fingerprint image; and,

the system further comprises:

a fingerprint image adding module, to add the fingerprint image configured by the user to each individual image.

11. A media player, comprising: a video post-processing unit to perform video processing on decoded video data, characterized in that, the media player further comprises:

a GIF generation subsystem, to capture and generate a target GIF file from the video data on which the video processing is performed by the video post-processing unit.

12. The media player of claim 11, characterized in that, the GIF generation subsystem is integrated in the video post-processing unit or an independent function unit in the media player.

13. The media player of claim 11 or 12, characterized in that, the GIF generation subsystem comprises:

a GIF parameter controlling module, to receive a GIF generation instruction comprising one or more GIF generation parameters configured by a user;

a video frame capture module, to, upon receiving the GIF generation instruction from the user, stop playing a media file and capture one or more video frames of the media file as one or more individual images according to the one or more GIF generation parameters configured by the user;

a GIF encoding module, to encode the one or more individual images and generate a target GIF file according to the one or more GIF generation parameters configured by the user; and,

a GIF file saving module, to save the target GIF file.

14. The media player of claim 11 or 12, characterized in that, the one or more GIF generation parameters comprise one or more image processing parameters; and, the GIF generation subsystem further comprises:

an image processing module, to perform image processing on the one or more individual images according to the one or more image processing parameters configured by the user.

15. The media player of claim 11 or 12, characterized in that, the one or more GIF generation parameters comprise a fingerprint image; and,

the GIF generation subsystem further comprises:

a fingerprint image adding module, to add the fingerprint image configured by the user to each individual image.

16. The media player of claim 11 or 12, characterized in that, the media player further comprises a GIF playing unit, to analyze and play the target GIF file.