

METHOD, APPARATUS, ELECTRONIC DEVICE, AND STORAGE MEDIUM FOR INFORMATION PRESENTATION

[0001] The present application claims priority to Chinese Patent Application No. 202311676162.2, filed on December 07, 2023, and entitled “METHOD, APPARATUS, ELECTRONIC DEVICE, AND STORAGE MEDIUM FOR INFORMATION PRESENTATION”, which is incorporated herein by reference in its entirety.

FIELD

[0002] The present disclosure relates to the field of artificial intelligence (AI) technologies, and in particular, to a method, an apparatus, an electronic device, and a storage medium for information presentation.

BACKGROUND

[0003] Text-to-image generation refers to a popular AI image generation technology, where after inputting description text of an image, an AI platform generates an image with rich details and imagination according to the description text. It allows the user to experience unprecedented creative freedom.

[0004] However, most existing text-to-image generation tools lack sharing functions, leaving users unable to effectively communicate and interact their creative achievements with other users, limiting the depth and breadth of user experience.

SUMMARY

[0005] In order to solve the above technical problems or at least partially solve the above technical problems, the present disclosure provides a method, an apparatus, an electronic device, and a storage medium for information presentation.

[0006] In a first aspect, the present disclosure provides a method for information presentation, including: determining a first image in response to a post instruction, and displaying the first image in a post configuration page; determining a candidate image in a target image library in response to a group image post instruction, where the first image and the candidate image are both obtained based on generation prompt information; determining the first image and the candidate image as images to be posted in an image group in response to a determination operation on the first image and the candidate image; and posting the image group.

[0007] In a second aspect, the present disclosure further provides an apparatus for information presentation, including: a first determination module configured to determine a first image in response to a post instruction, and display the first image in a post configuration page; a second determination module configured to determine a candidate image in a target image library in response to a group image post instruction, where the first image and the candidate image are both obtained based on generation prompt information; a third determination module configured to determine the first image and the candidate image as images to be posted in an image group in response to a determination operation on the first image and the candidate image; and a posting module configured to post the image group.

[0008] In a third aspect, the present disclosure further provides an electronic device, where the electronic device includes: one or more processors; and a storage apparatus configured to store one or more programs, and when

the one or more programs are executed by the one or more processors, the one or more processors are caused to implement the method for information presentation as described above.

[0009] In a fourth aspect, the present disclosure further provides a computer-readable storage medium having stored thereon a computer program, and when the computer program is executed by a processor, the method for information presentation as described above is implemented.

[0010] In a fifth aspect, an embodiment of the present disclosure further provides a computer program product, including computer program instructions that, when executed by a processor, the method for information presentation as described above is implemented.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The drawings herein, which are incorporated in and constitute a part of the specification, illustrate embodiments of the present disclosure and, together with the specification, serve to explain the principles of the present disclosure.

[0012] In order to more clearly illustrate the technical solutions in the embodiments of the present disclosure or in the prior art, the following briefly introduces the drawings required for describing the embodiments or the prior art. Obviously, for a person of ordinary skill in the art, he or she may also obtain other drawings based on these drawings without paying any creative efforts.

[0013] FIG. 1 is a flowchart of a method for information presentation provided by an embodiment of the present disclosure;

[0014] FIG. 2 to FIG. 9 are schematic diagrams of several terminal display interfaces provided by some embodiments of the present disclosure;

[0015] FIG. 10 is a structural schematic diagram of an apparatus for information presentation provided by an embodiment of the present disclosure; and

[0016] FIG. 11 is a structural schematic diagram of an electronic device provided by an embodiment of the present disclosure.

DETAILED DESCRIPTION

[0017] In order to understand the above objects, features and advantages of the present disclosure more clearly, the solutions of the present disclosure will be further described below. It should be noted that, in case of no conflict, the features in one embodiment or in different embodiments may be combined.

[0018] Many specific details are set forth in the following description to fully understand the present disclosure, but the present disclosure may also be implemented in other ways different from those described herein. Obviously, the described embodiments are part of the embodiments of the present disclosure, but not all of the embodiments.

[0019] FIG. 1 is a flowchart of a method for information presentation provided by an embodiment of the present disclosure, and the embodiment may be applied to a situation where a user shares an image with others. The method may be executed by an apparatus for information presentation, which may be implemented in a software and/or hardware manner. The apparatus may be configured in an electronic device, such as a terminal, and specifically includes but is not limited to a smart phone, a personal digital assistant, a tablet computer, a wearable

device with a display screen, a desktop computer, a laptop computer, an all-in-one computer, a smart home device, etc. In some scenarios, the method for information presentation provided by the present disclosure may be applied to an application with a text-to-image generation function.

[0020] As shown in FIG. 1, the method may specifically include the following steps.

[0021] At block S110, in response to a post instruction, a first image is determined, and the first image is displayed in a post configuration page.

[0022] The post instruction may be, for example, an instruction conveyed to the electronic device indicating the user's desire to post an image.

[0023] In some embodiments, the first image may be the initial image selected during an image posting process.

[0024] The post configuration page may be, for example, a page used to configure posting information. Optionally, in the post configuration page, the posting format of the image may be configured. The posting format of the image may specify, for example, whether the image is posted as a single image or as an image group. If the image is posted as the image group, the image configuration page may further allow for configuration of other images in the image group (other than the first image), the name of the image group, the layout style of the image group, etc.

[0025] There are various specific implementation methods for this step, and the present disclosure does not limit this. For example, an image generation page is displayed, the image generation page includes a plurality of historical images, and the historical images have corresponding post options. In response to a trigger operation on a post option for a target historical image in the image generation page, the target historical image is determined as the first image.

[0026] The image generation page may be, for example, a page that can receive generation prompt information and display an image generated based on the received generation prompt information.

[0027] At block S120, a candidate image is determined in a target image library in response to a group image post instruction, where the first image and the candidate image are both obtained based on generation prompt information.

[0028] The group image post instruction may be, for example, an instruction conveyed to the electronic device indicating the user's desire to post images in the form of an image group.

[0029] The target image library may be, for example, a pre-specified image set. For example, the target image library may include all historical images generated by the user. Optionally, the target image library may further include an editing result obtained by the user editing the historically generated image. In some embodiments, the editing may involve adding an effect to the historically generated image. Optionally, the target image library may also be configured to include only part of the historical images generated by the user.

[0030] The candidate image is selected from the target image library, and the subsequent candidate image and the first image are both used as images to be posted.

[0031] The generation prompt information may be, for example, description text information of an image input by the user. Based on the generation prompt information, an image may be generated using the text-to-image generation technology. The present disclosure does not limit the specific content of the generation prompt information. For example, the generation prompt information may be "Jiangnan landscape with waterside pavilions, and a branch of pink almond flowers blooms beyond the wall".

[0032] The first image and the candidate image both being obtained based on the generation prompt information refers to that the first image and the candidate image are both generated using the text-to-image generation technology.

[0033] There are various implementation methods for this step, and the present disclosure does not limit this. In an embodiment, the post configuration page includes a group image posting option, and an implementation method for this step may include generating the group image post instruction in response to a selection operation on the group image posting option; displaying an image summary page in response to the group image post instruction, where the image summary page includes a plurality of historical images, and the historical images are images in the target image library; and determining, in response to a selection operation on a historical image, the selected historical image as the candidate image.

[0034] The selection operation on the historical image may be, for example, a click operation or a drag-and-drop operation of the user on the historical image in the image summary page. It is used to convey to the electronic device that the user desires to determine the selected historical image as the candidate image.

[0035] By setting, in response to the selection operation on the historical image, the selected historical image is determined as the candidate image. The purpose is to allow the user to decide which images will be posted as the image to be posted.

[0036] In practice, the image summary page may include the first image, or may not include the first image. If the image summary page includes the first image, the first image is in a selected state in the image summary page.

[0037] In another embodiment, optionally, before determining the candidate image in the target image library, the method further includes: obtaining a historical image library; determining an image having an association relationship with the first image in the historical image library; and adding the image having the association relationship with the first image to the target image library.

[0038] The historical image library may include all historical images generated by the user. If the image having the association relationship with the first image is referred to as a second image, the specific association relationship between the second image and the first image is not limited in the embodiments of the present disclosure. For example, the second image and the first image may include the same object.

[0039] Optionally, a similarity between the second image and the first image may be greater than a first similarity threshold; and/or a similarity between generation prompt information of the second image and generation prompt information of the first image may be greater than a second similarity threshold.

[0040] For example, the first similarity threshold and the second similarity threshold may serve as criteria for determining whether an image can be used as the second image. In terms of values, the first similarity threshold and the second similarity threshold may be the same or different, and the present disclosure does not limit this.

[0041] Those skilled in the art may understand that if the similarity between the second image and the first image is greater than the first similarity threshold, the similarity between the candidate image and the first image may be greater than the first similarity threshold since the candidate image is selected from the second image. If the similarity between the generation prompt information of the second image and the generation prompt information of the first image is greater than the second similarity threshold, the similarity between the generation prompt information of the candidate image and the generation prompt information of the first image

may be greater than the second similarity threshold since the candidate image is selected from the second image.

[0042] By setting, the historical image library is obtained, the image having the association relationship with the first image is determined in the historical image library, and the image having the association relationship with the first image is added to the target image library. In essence, the electronic device performs an initial selection in the historical image library to obtain the target image library; and then selects the candidate image from the target image library. In this way, the images to be posted in the image group posted by the user can have visual consistency, and thus have visual impact.

[0043] At block S130, the first image and the candidate image are determined as images to be posted in an image group in response to a determination operation on the first image and the candidate image.

[0044] The determination operation on the first image and the candidate image may be, for example, an operation conveyed to the electronic device, indicating the user's confirmation to determine the first image and the candidate image as the images to be posted and post them as the image group. The determination operation on the first image and the candidate image may be a click operation or a slide operation on a preset control or a preset area in the post configuration page.

[0045] At block S140, the image group is posted.

[0046] For example, referring to FIG. 2, an Image 8 is displayed in the image generation page. A "post" option is provided below the Image 8. If the user desires to post the Image 8, the user may click on the "post" option below the Image 8. In response to the click operation on the "post" option below the Image 8, the electronic device generates the post instruction and determines the Image 8 as the first image. Referring to FIG. 3, the Image 8 is displayed in the post configuration page, and the post configuration page further includes a group image posting option. In response to a selection operation on the group image posting option, the image summary page is displayed. Referring to FIG. 4, all historical images in the target image library are displayed in the image summary page. The user may select the historical image in the image summary page. Continuing to refer to FIG. 4, the image summary page includes the Image 8. The Image 8 is in the selected state in the image summary page. If the user clicks on the Image 2 in the image summary page, the Image 2 is configured to the selected state. If the user continues to click on the "post" option in FIG. 4, the determination operation on the first image and the candidate image is generated, and subsequently both FIG. 8 and FIG. 2 are determined as images to be posted in the image group and posted.

[0047] According to the above technical solution, the first image is determined in response to the post instruction, and the first image is displayed in the post configuration page, the candidate image is determined in the target image library in response to the group image post instruction, where the first image and the candidate image are both obtained based on the generation prompt information, both the first image and the candidate image are determined as the images to be posted in the image group in response to the determination operation on the first image and the candidate image, and the image group is posted. In this way, a way of assisting the user to share his/her image creation works in a form of image group in the text-to-image generation tool is provided, which can satisfy the user's need for communication and interaction with others, and improve the user experience.

[0048] Based on the above technical solution, optionally, the method further includes: determining the number of images included in the image group; determining an image posting template corresponding to the number of images based on the number of images included in the image group; and formatting the image group using the

image posting template. The step S140 may be replaced with: posting the formatted image group.

[0049] The image posting template may be, for example, a preset image layout template, which includes a plurality of areas to be filled. The areas to be filled are used to display the image to be posted, so as to form the final image arrangement for posting.

[0050] In an embodiment, the images to be posted in the image group may be determined first, and then the image posting template used for posting may be determined. That is, the step of "determining the candidate image in a target image library" is executed first, and then steps of "determining the number of images included in the image group; and determining an image posting template corresponding to the number of images based on the number of images included in the image group" are executed. In this case, the user does not need to be asked about the number of images included in the image group, and the electronic device may directly obtain the number of images included in the image group.

[0051] Similarly, if it is preconfigured that a single image quantity corresponds to a plurality of image posting templates, it may be configured to display the plurality of image posting templates corresponding to the image quantity. In response to a selection operation on an image posting template, the selected image posting template may be determined as the image posting template used this time.

[0052] Further, it may be configured that determining the candidate image in the target image library includes: displaying an image summary page, where the image summary page includes a plurality of historical images, and the historical images are images in the target image library; and repeatedly configuring, in response to a selection operation on a historical image, a state of the selected historical image to a selected state, until the number of historical images in the selected state is equal to $N-1$, where N is a maximum number of images to be posted; and configuring a state of an unselected historical image in the image summary page to a non-selectable state. In "the number of historical images in the selected state is equal to $N-1$ ", the "historical images in the selected state" specifically refer to the historical images selected in the process of "repeatedly configuring, in response to the selection operation on the historical image, the state of the selected historical image to the selected state". In "the number of historical images in the selected state is equal to $N-1$ ", the "historical image in the selected state" refers to the candidate image.

[0053] For example, referring to FIG. 4, if the maximum number of images to be posted is configured to 5, that is, $N=5$. Since the Image 8 is the first image, when displaying the image summary page, the Image 8 is in the selected state by default. If the user then sequentially selects the Image 2, the Image 4a, the Image 4b, and the Image 12, during the process of selecting the Image 2, the Image 4a, the Image 4b, and the Image 12, the state of the selected image is switched from an unselected state to the selected state for each selection. After the Image 12 is selected, a total of four images are selected in the image summary page, and together with the first image determined previously, a total of five images are selected, reaching the set maximum number of images to be posted. By configuring states of images in the unselected state to the non-selectable state, the user is restricted from continuing to select images in the image summary page. The purpose of such configuration is to avoid the undesirable situation where the number of images ultimately selected by the user as the images to be posted is too large, making it impossible to provide a template for formatting.

[0054] In some other embodiments, the image posting template may be determined first, and then the images to be posted in the image group are determined. That is, steps of "determining the number of images included in

the image group; and determining an image posting template corresponding to the number of images based on the number of images included in the image group” are executed first, and then the step of “determining the candidate image in the target image library” is executed. In this case, the user needs to be asked about the number of images included in the image group that the user desires to post. After the user inputs the number of images included in the image group, the image posting template corresponding to the number of images (i.e., the image posting template used for this posting) is determined based on the number of images included in the image group. Then the user is allowed to select which images to be used as the images to be posted.

[0055] Optionally, if it is preconfigured that a single image quantity corresponds to a plurality of image posting templates, it may be configured to display the plurality of image posting templates corresponding to the image quantity. In response to a selection operation on an image posting template, the selected image posting template may be determined as the image posting template used this time.

[0056] The selection operation on the image posting template may be, for example, a click operation or a slide operation on an image posting template, which is used to convey to the electronic device that the user desires to use the selected image posting template.

[0057] Further, the image posting template may include M areas to be filled. The step “determining the image posting template corresponding to the number of images” may be before the step “determining the candidate image in the target image library”. The step “determining the candidate image in a target image library” may include: displaying an image summary page, where the image summary page includes a plurality of historical images, and the historical images are images in the target image library; and repeatedly configuring, in response to a selection operation on a historical image, the state of the selected historical image to a selected state, until the number of historical images in the selected state is equal to M-1; and configuring a state of an unselected historical images in the image summary page to a non-selectable state.

[0058] In some embodiments, the step “formatting the image group using the image posting template” may include automatically formatting, by the electronic device, the image group using the image posting template.

[0059] Optionally, the step “formatting the image group using the image posting template” may further include changing a position of an image to be posted in the image posting template in response to a position adjustment instruction for the image to be posted. The purpose of such configuration is to allow the user to format the image group.

[0060] The position adjustment instruction for the image to be posted may be, for example, an instruction conveyed to the electronic device, indicating that the user desires to place the image to be posted in which position in the image posting template or fill which area to be filled in the image posting template. In practice, the position adjustment instruction for the image to be posted may be generated after it is detected that the user clicks and/or drags and drops the image to be posted within the range of the image posting template.

[0061] By setting, the image group is formatted using the image posting template. This is essentially to provide the user with a standardized image layout, so that the user can quickly and conveniently organize and post the image group, thereby enabling the user to save time and effort spent on formatting, while ensuring that the final posted images are arranged in order.

[0062] Based on the above technical solution, optionally, it may also be configured to display an information flow page and an image generation page, where the information flow page includes a plurality of image groups

in a posted state, and the image generation page includes an input area for generation prompt information; and fill, in response to a preset trigger operation on an image in a target image group in the information flow page, generation prompt information of the triggered image in the input area for generation prompt information, where the target image group is any image group in the information flow page.

[0063] The information flow page may be, for example, a page or area used to display information in an information sequence. The information sequence is a data form that continuously provides content to the user. The information sequence includes multiple information arranged in a certain order. In the present disclosure, the information in the information sequence includes a single image or an image group in a posted state. In the information flow, different information may be posted by different users. All users may view the single image, or the image group posted by themselves or other users through the information flow page.

[0064] For example, the formatting result of the image group may be displayed in the post configuration page. If the user continues to click on the "Post" option in FIG. 6, referring to FIG. 7, the image group named "YYYYYY" is displayed in the information flow page in FIG. 7.

[0065] The preset trigger operation on the image in the target image group in the information flow page may be, for example, a click operation, a slide operation or a hover operation on a certain image in the target image group in the information flow page, and it may also be a click operation, a slide operation or a hover operation on a control associated with any image. The preset trigger operation on the image in the target image group in the information flow page is used to convey to the electronic device that the user desires to know or use the generation prompt information corresponding to the selected image.

[0066] For example, continuing to refer to FIG. 7, the information flow page includes a plurality of image groups in the posted state. These image groups may be created by different users. If the user hovers the mouse over an Image Ca in an image group named "ZZZZ", a control corresponding to the Image Ca is displayed. If the user further clicks on the control, the generation prompt information corresponding to the Image Ca is filled in the input area for generation prompt information. Subsequently, if the user clicks on the "Generate Now" option in the input area for generation prompt information, an image is generated based on the generation prompt information filled in the input area for generation prompt information.

[0067] By setting, in response to the preset trigger operation on the image in the target image group in the information flow page, the generation prompt information of the triggered image is filled in the input area for generation prompt information. In this way, it is convenient for other users to learn the generation prompt information corresponding to the selected image, and then create the same or better image. In addition, since the generation prompt information of an image is usually long, compared with the solution of displaying the generation prompt information of the triggered image in the information flow page, the solution of filling the generation prompt information of the triggered image in the input area for generation prompt information will not obscure other images in the information flow page, and is also convenient for the user to quickly generate an image.

[0068] Based on the above technical solution, optionally, the method may further include: displaying detailed information of the image group in response to a preset trigger operation on the image group in the information flow page.

[0069] The preset trigger operation on the image group in the information flow page may be, for example, a

click operation, a slide operation or the like on a certain control or a certain area in the image group display area, which is used to convey to the electronic device that the user desires to know the detailed information of the triggered image group.

[0070] For example, continuing to refer to FIG. 7, if the user clicks on the "Details" option in the image group named "YYYYYYY", or the user clicks on any image in the image group named "YYYYYYY", referring to FIG. 7, a detail display page is displayed. In the detail display page, each image in the image group may be displayed in an enlarged manner, and the generation prompt information of each image, information of the author creating the image group, comment information of other users on the image group, etc. may be displayed.

[0071] In practice, optionally, the user is allowed to post a single image. Optionally, the method may include: displaying an image generation page, where the image generation page includes a plurality of historical images, and the historical images have corresponding posting options; determining, in response to a trigger operation on a posting option for a target historical image in the image generation page, the target historical image as the first image; and displaying the first image in the post configuration page, where the post configuration page further includes a posting confirmation option, and posting the first image in response to a selection operation on the posting confirmation option.

[0072] For example, referring to FIG. 2, an Image 8 is displayed in the image generation page, and if the user clicks on the "Post" option below the Image 8. In response to the click operation on the "Post" option below the Image 8, the electronic device generates a post instruction and determines the Image 8 as the first image. Referring to FIG. 3, the Image 8 is displayed in the post configuration page, and the post configuration page further includes the posting confirmation option. If the user clicks on the posting confirmation option, the Image 8 is posted as a single image.

[0073] On the basis of the above technical solutions, optionally, the method further includes: displaying an author homepage, where the author homepage includes a classification option display area and a classification result display area, the classification option display area is configured to display at least one classification option, and the classification result display area is configured to display a posted image and/or a posted image group in a category corresponding to a classification option in a selected state.

[0074] For example, referring to FIG. 9, the author homepage of User 1 includes three classification options, which are "All", "Single Image" and "Image Group", respectively. In FIG. 9, the "Image Group" option is in the selected state, and all image groups posted by the User 1 are displayed in the classification result display area. If the user selects the "All" option, all images posted by the User 1, including single images and image groups, are displayed in the classification result display area. If the user selects the "Single Image" option, all single images posted by the User 1 are displayed in the classification result display area.

[0075] It may be understood that before using the technical solutions disclosed in the embodiments of the present disclosure, the user shall be informed of the type, scope of use, use scenarios, etc. of personal information involved in the present disclosure in an appropriate manner in accordance with relevant laws and regulations, and the authorization of the user shall be obtained.

[0076] For example, in response to receiving an active request from the user, prompt information is sent to the user to clearly inform the user that the requested operation will require access to and use of the user's personal information. In this way, the user may independently choose, based on the prompt information, whether to

provide the personal information to software or hardware, such as the electronic device, the application, the server or the storage medium, that performs the operations of the technical solutions of the present disclosure.

[0077] As an optional but non-limiting implementation, in response to receiving the active request from the user, the prompt information may be sent to the user in a form of, for example, a pop-up window, and the prompt information may be presented in text in the pop-up window. In addition, the pop-up window may also include a selection control for the user to choose whether to "agree" or "disagree" to provide the personal information to the electronic device.

[0078] It may be understood that the above process of notifying and obtaining user authorization is only illustrative and does not limit the implementations of the present disclosure, and other manners that satisfy the relevant laws and regulations may also be applied in the implementations of the present disclosure.

[0079] It should be noted that, for the sake of simple description, the foregoing method embodiments are all expressed as a series of action combinations, but a person skilled in the art should know that the present disclosure is not limited by the described action order, since certain steps may be performed in other orders or simultaneously according to the present disclosure. Secondly, a person skilled in the art should also know that the embodiments described in the specification all belong to preferred embodiments, and the involved actions and modules are not necessarily required by the present disclosure.

[0080] FIG. 10 is a structural schematic diagram of an apparatus for information presentation according to an embodiment of the present disclosure. The apparatus for information presentation provided by the embodiment of the present disclosure may be configured in a client.

[0081] Referring to FIG. 10, the apparatus for information presentation specifically includes: a first determination module 310 configured to determine a first image in response to a post instruction, and display the first image in the post configuration page; a second determination module 320 configured to determine a candidate image in a target image library in response to a group image post instruction, where the first image and the candidate image are both obtained based on generation prompt information; a third determination module 330 configured to determine the first image and the candidate image as images to be posted in an image group in response to a determination operation on the first image and the candidate image; and a posting module 340 configured to post the image group.

[0082] Further, the apparatus further includes a fourth determination module configured to: obtain a historical image library before determining the candidate image in the target image library; determine an image having an association relationship with the first image in the historical image library; and add the image having the association relationship with the first image to the target image library.

[0083] Further, a similarity between the candidate image and the first image is greater than a first similarity threshold; and/or a similarity between generation prompt information of the candidate image and generation prompt information of the first image is greater than a second similarity threshold.

[0084] Further, the apparatus further includes a template determination module configured to: determine a number of images included in the image group; determine an image posting template corresponding to the number of images based on the number of images included in the image group; and format the image group using the image posting template. The posting module 340 is configured to post the formatted image group.

[0085] Further, the apparatus further includes a second determination module configured to: display an image

summary page, where the image summary page includes a plurality of historical images, and the historical images are images in the target image library; and repeatedly configure, in response to a selection operation on a historical image, a state of the selected historical image to a selected state, until a number of historical images in the selected state is equal to $N-1$, where N is a maximum number of images to be posted; and configure a state of an unselected historical image in the image summary page to a non-selectable state.

[0086] Further, the template determination module is configured to change a position of the image to be posted in the image posting template in response to a position adjustment instruction for the image to be posted.

[0087] Further, the apparatus further includes a browsing module configured to: display an information flow page and an image generation page, where the information flow page includes a plurality of image groups in a posted state, and the image generation page includes an input area for generation prompt information; and fill, in response to a preset trigger operation on an image in a target image group in the information flow page, generation prompt information of the triggered image in the input area for generation prompt information, where the target image group is any image group in the information flow page.

[0088] The apparatus for information presentation provided by the embodiment of the present disclosure may perform the steps performed by the client in the method for information presentation provided by the method embodiment of the present disclosure, and has the steps performed and beneficial effects, which are not repeated here.

[0089] FIG. 11 is a structural schematic diagram of an electronic device according to an embodiment of the present disclosure. The following specifically refers to FIG. 11, which illustrates a structural schematic diagram of an electronic device 1000 suitable for implementing the embodiments of the present disclosure. The electronic device 1000 in the embodiment of the present disclosure may include, but is not limited to, mobile terminals such as a mobile phone, a laptop computer, a digital broadcast receiver, a personal digital assistant (PDA), a tablet computer (PAD), a portable multimedia player (PMP), a vehicle-mounted terminal (e.g., a vehicle navigation terminal), and a wearable electronic device, and fixed terminals such as a digital TV, a desktop computer, and a smart home device. The electronic device shown in FIG. 11 is only an example, and should not impose any limitation on the functions and the scope of use of the embodiments of the present disclosure.

[0090] As shown in FIG. 11, the electronic device 1000 may include a processing device (e.g., a central processing unit, a graphics processing unit, etc.) 1001, which may perform various appropriate actions and processes according to a program stored in a read-only memory (ROM) 1002 or a program loaded from a storage device 1008 into a random access memory (RAM) 1003 to implement the method for information presentation of the embodiments as described in the present disclosure. The RAM 1003 further stores various programs and information required for operations of the electronic device 1000. The processing device 1001, the ROM 1002 and the RAM 1003 are connected to each other through a bus 1004. An input/output (I/O) interface 1005 is also connected to the bus 1004.

[0091] Usually, the following devices may be connected to the I/O interface 1005: an input device 1006 including, for example, a touch screen, a touchpad, a keyboard, a mouse, a camera, a microphone, an accelerometer, a gyroscope, etc.; an output device 1007 including, for example, a liquid crystal display (LCD), a speaker, a vibrator, etc.; the storage device 1008 including, for example, a magnetic tape, a hard disk, etc.; and a communication device 1009. The communication device 1009 may allow the electronic device 1000 to perform

wireless or wired communication with other devices to exchange information. Although FIG. 11 shows the electronic device 1000 with various devices, it should be understood that it is not required to implement or provide all the devices shown. More or fewer devices may be implemented or provided alternatively.

[0092] In particular, according to the embodiments of the present disclosure, the process described above with reference to the flowchart may be implemented as a computer software program. For example, the embodiments of the present disclosure include a computer program product, which includes a computer program carried on a non-transitory computer-readable medium, and the computer program includes program code for performing the method shown in the flowchart, thereby implementing the method for information presentation as described above. In such an embodiment, the computer program may be downloaded and installed from a network through the communication device 1009, or installed from the storage device 1008, or installed from the ROM 1002. When the computer program is executed by the processing device 1001, the above-mentioned functions defined in the method of the embodiments of the present disclosure are executed.

[0093] It should be noted that the above computer-readable medium in the present disclosure may be a computer-readable signal medium, a computer-readable storage medium, or any combination of the two. The computer-readable storage medium may be, for example, but is not limited to, an electrical, magnetic, optical, electromagnetic, infrared, or semiconductor system, apparatus or device, or any combination of the above. More specific examples of the computer-readable storage medium may include, but are not limited to: an electrical connection with one or more wires, a portable computer magnetic disk, a hard disk, a random access memory (RAM), a read-only memory (ROM), an erasable programmable read-only memory (EPROM or flash memory), an optical fiber, a portable compact disc read-only memory (CD-ROM), an optical storage device, a magnetic storage device, or any suitable combination of the above. In the present disclosure, the computer-readable storage medium may be any tangible medium that contains or stores a program, which may be used by or in combination with an instruction execution system, apparatus or device. In the present disclosure, the computer-readable signal medium may include an information signal propagated in a baseband or as a part of a carrier wave, and computer-readable program code is carried in the information signal. This propagated information signal may be in many forms, and includes, but is not limited to, an electromagnetic signal, an optical signal, or any suitable combination of the above. The computer-readable signal medium may also be any computer-readable medium other than the computer-readable storage medium, and the computer-readable signal medium may send, propagate or transmit the program used by or in combination with the instruction execution system, apparatus or device. The program code contained on the computer-readable medium may be transmitted in any suitable medium, including, but not limited to: a wire, an optical cable, a radio frequency (RF), etc., or any suitable combination of the above.

[0094] In some implementations, the client and the server may communicate using any known or future developed network protocol, such as the hypertext transfer protocol (HTTP), and may be interconnected with any form or medium of digital information communication (for example, a communication network). Examples of the communication network include a local area network ("LAN"), a wide area network ("WAN"), an internet (for example, the Internet), a peer-to-peer network (for example, an Ad-Hoc network), and any network known or to be developed in the future.

[0095] The above computer-readable medium may be included in the above electronic device, or it may exist alone without being assembled into the electronic device.

[0096] The above computer-readable medium carries one or more programs that, when executed by the electronic device, cause the electronic device to: determine a first image in response to a post instruction, and display the first image in a post configuration page; determine a candidate image in a target image library in response to a group image post instruction, where the first image and the candidate image are both obtained based on generation prompt information; determine the first image and the candidate image as images to be posted in an image group in response to a determination operation on the first image and the candidate image; and post the image group.

[0097] Optionally, when the one or more programs are executed by the electronic device, the electronic device may further perform other steps described in the above embodiments.

[0098] The computer program code for performing the operations of the present disclosure may be written in one or more programming languages or a combination thereof, and the above programming languages include, but are not limited to, an object-oriented programming language, such as Java, Smalltalk, and C++, and further include conventional procedural programming languages, such as "C" language or similar programming languages. The program code may be executed entirely on a user computer, partly executed on a user computer, executed as an independent software package, partly executed on a user computer and partly executed on a remote computer, or entirely executed on a remote computer or server. In the case of involving a remote computer, the remote computer may be connected to the user computer through any kind of network, including a local area network (LAN) or a wide area network (WAN), or it may be connected to an external computer (for example, connected through the Internet with the aid of an Internet service provider).

[0099] The flowcharts and block diagrams in the drawings illustrate the possibly implemented architectures, functions and operations of the system, the method and the computer program product according to various embodiments of the present disclosure. In this regard, each block in the flowchart or block diagram may represent a module, program segment, or part of code, and the module, program segment, or part of code contains one or more executable instructions for implementing the specified logical functions. It should also be noted that, in some alternative implementations, the functions marked in the blocks may also occur in an order different from that marked in the drawings. For example, two blocks shown in succession may actually be executed substantially in parallel, or they may sometimes be executed in the reverse order, depending on the functions involved. It should also be noted that each block in the block diagram and/or the flowchart, and a combination of the blocks in the block diagram and/or the flowchart may be implemented by a dedicated hardware-based system that executes specified functions or operations, or may be implemented by a combination of dedicated hardware and computer instructions.

[0100] The involved units described in the embodiments of the present disclosure may be implemented by software or by hardware. Among them, the name of the unit does not constitute a limitation on the unit itself under certain circumstances.

[0101] The functions described above herein may be performed at least partially by one or more hardware logic components. For example, without limitation, example types of hardware logic components that may be used include: a field programmable gate array (FPGA), an application specific integrated circuit (ASIC), an application specific standard product (ASSP), a system on chip (SOC), a complex programmable logical device (CPLD), etc.

[0102] In the context of the present disclosure, the machine-readable medium may be a tangible medium that may contain or store a program for use by or in combination with an instruction execution system, apparatus or device. The machine-readable medium may be a machine-readable signal medium or a machine-readable storage medium. The machine-readable medium may include, but is not limited to, an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system, apparatus or device, or any suitable combination of the above. More specific examples of the machine-readable storage medium may include one or more wire-based electrical connections, portable computer disks, hard disks, random access memory (RAM), read-only memory (ROM), erasable programmable read-only memory (EPROM or flash memory), optical fibers, portable compact disk read-only memory (CD-ROM), optical storage devices, magnetic storage devices, or any suitable combination of the above.

[0103] According to one or more embodiments of the present disclosure, the present disclosure provides an electronic device, including: one or more processors; and a memory configured to store one or more programs, and when the one or more programs are executed by the one or more processors, the one or more processors are caused to implement any method for information presentation as provided in the present disclosure.

[0104] According to one or more embodiments of the present disclosure, the present disclosure provides a computer-readable storage medium, where a computer program is stored on the computer-readable storage medium, and when the computer program is executed by a processor, any method for information presentation as provided in the present disclosure is implemented.

[0105] An embodiment of the present disclosure further provides a computer program product, where the computer program product includes a computer program or instructions, and when the computer program or instructions is executed by a processor, the method for information presentation as described above is implemented.

[0106] It should be noted that in this paper, relational terms such as "first" and "second" are only used to distinguish one entity or operation from another entity or operation, and do not necessarily require or imply any actual relationship or order between these entities or operations. Moreover, the terms "include", "include" or any other variant thereof are intended to cover non-exclusive inclusion, so that a process, method, article or device including a series of elements includes not only those elements, but also other elements not explicitly listed or elements inherent to this process, method, article or device. Without further restrictions, an element defined by the phrase "includes a" does not exclude the existence of other identical elements in the process, method, article or device that includes the element.

[0107] The above description is only a specific implementation of the present disclosure, so that those skilled in the art may understand or implement the present disclosure. Various modifications to these embodiments will be apparent to those skilled in the art, and the general principles defined herein may be implemented in other embodiments without departing from the spirit or scope of the present disclosure. Therefore, the present disclosure will not be limited to these embodiments described herein, but rather to the widest scope consistent with the principles and novel features disclosed herein.

WHAT IS CLAIMED IS:

1. A method for information presentation, comprising:
 - determining a first image in response to a post instruction, and displaying the first image in a post configuration page;
 - determining a candidate image in a target image library in response to a group image post instruction, the first image and the candidate image both being obtained based on generation prompt information;
 - determining the first image and the candidate image as images to be posted in an image group in response to a determination operation on the first image and the candidate image; and
 - posting the image group.
2. The method of claim 1, wherein before determining the candidate image in the target image library, the method further comprises:
 - obtaining a historical image library;
 - determining an image having an association relationship with the first image in the historical image library;
 - and
 - adding the image having the association relationship with the first image to the target image library.
3. The method of claim 2, wherein a similarity between the candidate image and the first image is greater than a first similarity threshold; and/or
 - a similarity between generation prompt information of the candidate image and generation prompt information of the first image is greater than a second similarity threshold.
4. The method of claim 1, further comprising:
 - determining a number of images comprised in the image group;
 - determining an image posting template corresponding to the number of images based on the number of images comprised in the image group;
 - formatting the image group using the image posting template; and
 - wherein posting the image group comprises:
 - posting the formatted image group.
5. The method of claim 1, wherein determining the candidate image in the target image library comprises:
 - displaying an image summary page, the image summary page comprising a plurality of historical images, and the historical images are images in the target image library;
 - repeatedly configuring, in response to a selection operation on a historical image, a state of the selected historical image to a selected state, until a number of historical images in the selected state is equal to $N-1$, wherein N is a maximum number of images to be posted; and
 - configuring a state of an unselected historical image in the image summary page to a non-selectable state.

6. The method of claim 4, wherein formatting the image group using the image posting template further comprises:

changing a position of the image to be posted in the image posting template in response to a position adjustment instruction for the image to be posted.

7. The method of claim 1, further comprising:

displaying an information flow page and an image generation page, the information flow page comprising a plurality of image groups in a posted state, and the image generation page comprising an input area for generation prompt information; and

filling, in response to a preset trigger operation on an image in a target image group in the information flow page, generation prompt information of the triggered image in the input area for generation prompt information, the target image group being any image group in the information flow page.

8. An apparatus for information presentation, comprising:

a first determination module configured to determine a first image in response to a post instruction, and display the first image in a post configuration page;

a second determination module configured to determine a candidate image in a target image library in response to a group image post instruction, the first image and the candidate image both being obtained based on generation prompt information;

a third determination module configured to determine the first image and the candidate image as images to be posted in an image group in response to a determination operation on the first image and the candidate image; and

a posting module configured to post the image group.

9. An electronic device, comprising:

one or more processors;

a storage apparatus configured to store one or more programs; and

when the one or more programs are executed by the one or more processors, the one or more processors are caused to perform the method according to any of claims 1 to 7.

10. A computer-readable storage medium having stored thereon a computer program that, when executed by a processor, a method according to any of claims 1 to 7 is performed.

11. A computer program product comprising computer-executable instructions that, when executed by a processor, a method according to any of claims 1 to 7 is performed.