CLAIMS

What is claimed is:

1. A face liveness detection method, comprising:

obtaining multiple face images continuously captured for a first user, wherein the obtaining comprises:

prompting, based on a user terminal of the first user, the first user to adjust a photographing method to improve face image quality; and

during the prompting, continuously photographing the multiple face images by using the user terminal;

for any target attribute in one or more predetermined image attributes, determining multiple attribute values corresponding to the target attribute for the multiple face images, and selecting two face images from the multiple face images based on the multiple attribute values, wherein a degree of difference between two attribute values of the target attribute corresponding to the two face images satisfies a predetermined criterion, and wherein the selecting comprises determining a maximum value and a minimum value in the multiple attribute values, and obtaining the two face images corresponding to the maximum value and the minimum value; and

inputting both of the two face images into a pre-trained face liveness detection model corresponding to the target attribute to obtain a detection result corresponding to the target attribute.

2. The method according to claim 1, wherein the prompting to adjust a photographing method comprises the following:

prompting to adjust a position of a face relative to the user terminal; and/or

prompting to adjust a light intensity of a photographing environment.

3. The method according to claim 1, wherein when the target attribute is a face size, the determining multiple attribute values of the target attribute corresponding to the multiple face images comprises the following:

separately inputting the multiple face images into a trained face detection model to obtain multiple face regions corresponding to the multiple face images; and

determining multiple face region areas corresponding to the multiple face regions.

4. The method according to claim 1, wherein when the target attribute is a facial organ size, the determining multiple attribute values of the target attribute corresponding to the

multiple face images comprises the following:

separately inputting the multiple face images into a trained facial organ detection model to obtain multiple facial organ regions corresponding to the multiple face images; and

determining multiple organ region areas corresponding to the multiple facial organ regions.

5. The method according to claim 1, wherein when the target attribute is a light intensity, the determining multiple attribute values of the target attribute corresponding to the multiple face images comprises the following:

separately inputting the multiple face images into a trained light intensity evaluation model to obtain multiple light intensities.

6. The method according to claim 1, wherein the selecting, from the multiple face images based on the multiple attribute values, two face images whose degree of difference between corresponding attribute values satisfies the predetermined criterion comprises the following:

selecting, from the multiple face images, two face images whose degree of difference between the corresponding attribute values is greater than a predetermined threshold.

7. The method according to claim 1, wherein the one or more image attributes are multiple image attributes; and after the obtaining a detection result corresponding to the target attribute, the method further comprises the following:

determining a final detection result for the first user based on multiple detection results corresponding respectively to the multiple image attributes.

8. The method according to claim 7, wherein the determining a final detection result for the first user based on multiple detection results corresponding respectively to the multiple image attributes comprises the following:

when the multiple detection results all indicate that the first user succeeds in face liveness detection, determining the final detection result as a face liveness detection success.

9. A face liveness detection apparatus, comprising:

an image acquisition unit, configured to obtain multiple face images continuously captured for a first user, wherein the obtaining comprises:

prompting, based on a user terminal of the first user, the first user to adjust a photographing method to improve face image quality; and

during the prompting, continuously photographing the multiple face images by using the user terminal;

an image selection unit comprising the following:

an attribute value determining subunit, configured to, for any target attribute in one or more predetermined image attributes, determine multiple attribute values corresponding

to the target attribute for the multiple face images determine multiple attribute values of the target attribute corresponding to the multiple face images; and

an image selection subunit, configured to select two face images from the multiple face images based on the multiple attribute values, wherein a degree of difference between two attribute values of the target attribute corresponding to the two face images satisfies a predetermined criterion, and wherein the selecting comprises determining a maximum value and a minimum value in the multiple attribute values, and obtaining the two face images corresponding to the maximum value and the minimum value; and

a liveness detection unit, configured to input both of the two face images into a pre-trained face liveness detection model corresponding to the target attribute to obtain a detection result corresponding to the target attribute.

10. The apparatus according to claim 9, wherein the prompting to adjust a photographing method comprises the following:

prompting to adjust a position of a face relative to the user terminal; and/or

prompting to adjust a light intensity of a photographing environment.

11. The apparatus according to claim 9, wherein when the target attribute is a face size, the attribute value determining subunit is specifically configured to:

separately input the multiple face images into a trained face detection model to obtain multiple face regions corresponding to the multiple face images; and

determine multiple face region areas corresponding to the multiple face regions.

12. The apparatus according to claim 9, wherein when the target attribute is a facial organ size, the attribute value determining subunit is specifically configured to:

separately input the multiple face images into a trained facial organ detection model to obtain multiple facial organ regions corresponding to the multiple face images; and

determine multiple organ region areas corresponding to the multiple facial organ regions.

13. The apparatus according to claim 9, wherein when the target attribute is a light intensity, the attribute value determining subunit is specifically configured to:

separately input the multiple face images into a trained light intensity evaluation model to obtain multiple light intensities.

14. The apparatus according to claim 9, wherein the image selection subunit is specifically configured to:

select, from the multiple face images, two face images whose degree of difference between the corresponding attribute values is greater than a predetermined threshold.

15. The apparatus according to claim 9, wherein the one or more image attributes are

multiple image attributes; and the apparatus further comprises the following:

a final-result determining unit, configured to determine a final detection result for the first user based on multiple detection results corresponding respectively to the multiple image attributes.

16. The apparatus according to claim 15, wherein the final-result determining unit is specifically configured to:

when the multiple detection results all indicate that the first user succeeds in face liveness detection, determine the final detection result as a face liveness detection success.

17. A computer-readable storage medium, wherein the computer-readable storage medium stores a computer program, and when the computer program is executed in a computer, the computer is enabled to perform the method according to any one of claims 1 to 8.

18. A computing device, comprising a memory and a processor, wherein executable code is stored in the memory, and when the processor executes the executable code, the method according to any one of claims 1 to 8 is implemented.