CLAIMS

1. A method for image processing, comprising:

acquiring a target region image in an image to be recognized, the target region image comprising at least one target object;

determining, based on the target region image, a state of each of the at least one target object, the state comprising eye-open and eye-closed; and

determining, based at least part on the state of each of the at least one target object, an identity authentication result~~.~~;

wherein the method further comprises: performing face recognition on the image to be recognized to obtain a face recognition result; wherein

determining, based at least part on the state of each of the at least one target object, the identity authentication result comprises: responsive to the face recognition result being that recognition succeeds and the at least one target object comprising a target object of which the state is eye-open, determining that the identity authentication succeeds.

~~2. The method of claim 1, wherein determining, based at least part on the state of each of the at least one target object, the identity authentication result comprises:~~

~~responsive to the at least one target object comprising a target object of which the state is eye-open, determining that identity authentication succeeds.~~

~~3~~2. The method of claim 1~~ or 2~~, before determining, based on the target region image, the state of each of the at least one target object, further comprising: determining whether there is preset image information in a base database matched with the image to be recognized, wherein

determining, based on the target region image, the state of each of the at least one target object comprises: responsive to there being the preset image information in the base database

matched with the image to be recognized, determining the state of each of the at least one target object.

~~4. The method of claim 1 or 2, further comprising: performing face recognition on the image to be recognized to obtain a face recognition result, wherein~~

~~determining, based at least part on the state of each of the at least one target object, the identity authentication result comprises: determining, based at least part on the face recognition result and the state of each of the at least one target object, the identity authentication result.~~

~~5. The method of claim 1 or 2, wherein determining, based at least part on the state of each of the at least one target object, the identity authentication result comprises:~~

~~responsive to determining the at least one target object comprising the target object of which the state is eye open, performing face recognition on the image to be recognized to obtain the face recognition result; and~~

~~determining, based on the face recognition result, the identity authentication result.~~

~~6~~3. The method of ~~any one of~~ claim~~s~~ 1~~-5~~ or 2, wherein the target region image comprise a first region image and a second region image, and the at least one target object comprises a first target object and a second target object; and

acquiring the target region image in the image to be recognized comprises:

acquiring the first region image in the image to be recognized, the first region image comprising the first target object, and

performing mirroring processing on the first region image to obtain the second region image, the second region image comprising the second target object.

~~7~~4. The method of any one of claims 1-~~6~~3, wherein determining, based on the target region image,

the state of each of the at least one target object comprises:

processing the target region image to obtain a prediction result, the prediction result comprising at least one of: image validity information of the target region image, or state information of the at least one target object; and

determining, according to at least one of the image validity information or the state information of the at least one target object, the state of each of the at least one target object.

~~8~~5. The method of claim ~~7~~4, wherein determining, according to at least one of the image validity information or the state information of the at least one target object, the state of each of the at least one target object comprises:

responsive to the image validity information indicating that the target region image is invalid, determining that the state of each of the at least one target object is eye-closed; and/or,

responsive to the image validity information indicating that the target region image is valid, determining, based on the state information of each of the at least one target object, the state of each of the at least one target object.

~~9~~6. The method of claim ~~7 4~~ or ~~8~~5, wherein the image validity information comprises a validity confidence, and the state information comprises an eye-open confidence; and

determining, according to at least one of the image validity information or the state information of the at least one target object, the state of each of the at least one target object comprises: responsive to the validity confidence exceeding a first threshold and the eye-open confidence of the target object exceeding a second threshold, determining that the state of the target object is eye-open.

~~10~~7. The method of any one of claims ~~7~~4-~~9~~6, wherein processing the target region image to obtain the prediction result comprises:

performing feature extraction processing on the target region image to obtain feature

information of the target region image; and

obtaining, according to the feature information of the target region image, the prediction result of the target region image.

~~11~~8. The method of any one of claims 1-~~10~~7, further comprising: responsive to determining that identity authentication succeeds, unlocking a terminal device; or

responsive to determining that identity authentication succeeds, executing a payment operation.

~~12. A method for image processing, comprising:~~

~~acquiring a target region image in an image to be recognized, the target region image comprising at least one target object;~~

~~performing feature extraction processing on the target region image to obtain feature information of the target region image; and~~

~~determining, according to the feature information of the target region image, a state of each of the at least one target object, the state comprising eye open and eye closed.~~

~~13. The method of claim 12, wherein the target region image comprise a first region image and a second region image, and the at least one target object comprises a first target object and a second target object; and~~

~~acquiring the target region image in the image to be recognized comprises:~~

~~acquiring the first region image in the image to be recognized, the first region image comprising the first target object, and~~

~~performing mirroring processing on the first region image to obtain the second region image, the second region image comprising the second target object.~~

~~14. The method of claim 12 or 13, wherein determining, according to the feature information of the target region image, the state of each of the at least one target object comprises:~~

~~obtaining, according to the feature information of the target region image, a prediction result, the prediction result comprising at least one of image validity information of the target region image or state information of the at least one target object; and~~

~~determining, according to at least one of the image validity information or the state information of the at least one target object, the state of each of the at least one target object.~~

~~15. The method of claim 14, wherein determining, according to at least one of the image validity information or the state information of the at least one target object, the state of each of the at least one target object comprises:~~

~~responsive to the image validity information indicating that the target region image is invalid, determining that the state of each of the at least one target object is eye-closed; and/or,~~

~~responsive to the image validity information indicating that the target region image is valid, determining, based on the state information of each of the at least one target object, the state of each of the at least one target object.~~

~~16. The method of claim 14 or 15, wherein the image validity information comprises a validity confidence, and the state information comprises an eye-open confidence; and~~

~~determining, according to at least one of the image validity information or the state information of the at least one target object, the state of the at least one target object comprises: responsive to the validity confidence exceeding a first threshold and the eye-open confidence of the target object exceeding a second threshold, determining that the state of the target object is eye-open.~~

~~17~~9. An apparatus for image processing, comprising:

an image acquisition module, configured to acquire a target region image in an image to be

recognized, the target region image comprising at least one target object;

a state determination module, configured to determine, based on the target region image, a state of each of the at least one target object, the state comprising eye-open and eye-closed; and

an authentication result determination module, configured to determine, based at least part on the state of each of the at least one target object, an identity authentication result.;

wherein the apparatus further comprises a recognition result acquisition module, configured to perform face recognition on the image to be recognized to obtain a face recognition result, wherein

the authentication result determination module further comprises a second determination submodule, configured to, responsive to the face recognition result being that recognition succeeds and the at least one target object comprising a target object of which the state is eye-open, determine the identity authentication succeeds.

18. An image processing apparatus, comprising:

a target region image acquisition module, configured to acquire a target region image in an image to be recognized, the target region image comprising at least one target object;

an information acquisition module, configured to perform feature extraction processing on the target region image to obtain feature information of the target region image; and

a determination module, configured to determine, according to the feature information of the target region image, a state of each of the at least one target object, the state comprising eye-open and eye-closed.

1910. An electronic device, comprising:

a processor;

a memory, configured to store instructions executable for the processor,

wherein the processor is configured to call the instructions stored in the memory to execute the method of any one of claims 1-~~16~~8.

~~20~~11. A computer-readable storage medium, in which computer program instructions are stored, the computer program instructions being executed by a processor to implement the method of any one of claims 1-~~16~~8.