CLAIMS

1. A method for resource transfer, comprising:

acquiring a front face image, and a side face image from at least one side, of a target user;

performing a liveness detection and an identity recognition on the target user based on the front face image and the side face image; and

executing, if ~~the~~ a liveness detection result is that the target user is a live user and ~~the~~ an identity recognition result is that the target user is an authorized user of a target electronic account, resource transfer on the target electronic account,

wherein the performing identity recognition on the target user comprises:

performing a first similarity comparison between the front face image of the target user and a recorded front face image corresponding to the target electronic account; and

performing a second similarity comparison between the side face image of the target user and a recorded side face image corresponding to the target electronic account; and

performing the identity recognition on the target user based on a front face similarity determined from the first similarity comparison and a side face similarity determined from the second similarity comparison;

wherein the performing the second similarity comparison comprises:

standardizing the side face image of the target user to obtain a standard side face image, wherein a size of the standard side face image is a set size, and a side face posture in the standard side face image is a set posture;

extracting a first side face feature vector of the target user based on the standard side face image;

acquiring a second side face feature vector corresponding to the recorded side face image; and

calculating a similarity between the side face image and the recorded side face image based on the first side face feature vector and the second side face feature vector.

~~2. The method according to claim 1, wherein the performing the liveness detection and the identity recognition on the target user based on the front face image and the side face image comprises:~~

~~performing the liveness detection on the target user based on the front face image and the side face image; and~~

~~performing the identity recognition on the target user based on the front face image and the side face image if the liveness detection result is that the target user is a live user.~~

~~3~~2. The method according to claim ~~2~~1, wherein the performing the liveness detection on the target user based on the front face image and the side face image comprises:

inputting the front face image of the target user into a pre-trained first liveness detection model for processing to acquire a first probability outputted from the first liveness detection model; and

inputting the side face image of the target user into a pre-trained second liveness detection model for processing to acquire a second probability outputted from the second liveness detection model, wherein the first probability and the second probability are each a probability that the target user is a live user; or the first probability and the second probability are each a probability that the target user is a non-live representation of a user; and

identifying whether the target user is a live user based on the first probability and the second probability.

43. The method according to claim ~~3~~2, wherein the identifying whether the target user is a live user based on the first probability and the second probability comprises:

performing a fusion calculation on the first probability and the second probability to obtain a fusion result corresponding to the first probability and the second probability; and

identifying whether the target user is a live user based on the fusion result and a set probability

threshold.

~~5~~4. The method according to claim ~~2~~1, wherein the performing liveness detection on the target user based on the front face image and the side face image comprises:

inputting the front face image and the side face image of the target user into a pre-trained ~~third~~ liveness detection model for processing to acquire a ~~third~~ probability outputted from the ~~third~~ liveness detection model, wherein the ~~third~~ probability is a probability that the target user is a live user, or the ~~third~~ probability is a probability that the target user is a non-live representation of a user; and

identifying whether the target user is a live user based on the ~~third~~ probability and a set probability threshold.

~~6. The method according to claim 2, wherein the performing identity recognition on the target user based on the front face image and the side face image comprises:~~

~~performing a similarity comparison between the front face image and a recorded front face image corresponding to the target electronic account; and performing a similarity comparison between the side face image and a recorded side face image corresponding to the target electronic account; and~~

~~performing identity recognition on the target user based on a front face similarity and a side face similarity.~~

~~7. The method according to claim 6, wherein the performing a similarity comparison between the side face image and a recorded side face image corresponding to the target electronic account comprises:~~

~~standardizing the side face image to obtain a standard side face image; wherein a size of the standard side face image is a set size, and a side face posture in the standard side face image is a~~

~~set posture;~~

~~extracting a first side face feature vector of the target user based on the standard side face image; and acquiring a second side face feature vector corresponding to the recorded side face image; and~~

~~calculating a similarity between the side face image and the recorded side face image based on the first side face feature vector and the second side face feature vector.~~

~~8~~5. The method according to claim ~~6~~1, wherein the performing identity recognition on the target user based on a front face similarity and a side face similarity comprises:

determining the target user as an authorized user of the target electronic account if the front face similarity is greater than a first set threshold and the side face similarity is greater than a second set threshold.

~~9~~6. An apparatus for resource transfer, comprising:

a processor; and

a memory configured to store instructions, wherein the processor is configured to execute the instructions to:

~~an acquiring module configured to~~ acquire a front face image, and a side face image from at least one side, of a target user;

~~an identifying module configured to~~ perform liveness detection and identity recognition on the target user based on the front face image and the side face image; and

~~an executing module configured to~~ execute, if ~~the~~ a liveness detection result is that the target user is a live user and ~~the~~ an identity recognition result is that the target user is an authorized user of a target electronic account, resource transfer on the target electronic account,

wherein in performing the identity recognition on the target user, the processor is further configured to execute the instructions to:

perform a first similarity comparison between the front face image of the target user and a recorded front face image corresponding to the target electronic account;

perform a second similarity comparison between the side face image of the target user and a recorded side face image corresponding to the target electronic account; and

perform the identity recognition on the target user based on a front face similarity determined from the first similarity comparison and a side face similarity determined from the second similarity comparison,

wherein in performing the second similarity comparison, the processor is further configured to execute the instructions to:

standardize the side face image of the target user to obtain a standard side face image, wherein a size of the standard side face image is a set size, and a side face posture in the standard side face image is a set posture;

extract a first side face feature vector of the target user based on the standard side face image;

acquire a second side face feature vector corresponding to the recorded side face image; and

calculate a similarity between the side face image of the target user and the recorded side face image based on the first side face feature vector and the second side face feature vector.

~~10. The apparatus according to claim 9, wherein the identifying module comprises:~~

~~a first identifying unit configured to perform liveness detection on the target user based on the front face image and the side face image; and~~

~~a second identifying unit configured to perform identity recognition on the target user based on the front face image and the side face image if the liveness detection result is that the target user is a live user.~~

~~11~~7. The apparatus according to claim ~~10~~6, wherein the processor is further configured to execute the instructions to ~~the first identifying unit is specifically configured to~~:

input the front face image of the target user into a pre-trained first liveness detection model for processing to acquire a first probability outputted from the first liveness detection model; ~~and~~

input the side face image of the target user into a pre-trained second liveness detection model for processing to acquire a second probability outputted from the second liveness detection model; wherein the first probability and the second probability are each a probability that the target user is a live user; or the first probability and the second probability are each a probability that the target user is a non-live representation of a user; and

identify whether the target user is a live user based on the first probability and the second probability.

~~12~~8. The apparatus according to claim ~~10~~6, wherein the processor is further configured to execute the instructions to~~wherein the first identifying unit is further specifically configured to~~:

input the front face image and the side face image of the target user into a pre-trained ~~third~~ liveness detection model for processing to acquire a ~~third~~ probability outputted from the ~~third~~ liveness detection model; wherein the ~~third~~ probability is a probability that the target user is a live user, or the ~~third~~ probability is a probability that the target user is a non-live representation of a user; and

identify whether the target user is a live user based on the ~~third~~ probability and a set probability threshold.

~~13~~9. The apparatus according to claim ~~10~~7, wherein the processor is further configured to execute the instructions to~~wherein the second identifying unit is specifically configured to~~:

perform a fusion calculation on the first probability and the second probability to obtain a fusion result corresponding to the first probability and the second probability; and

identify whether the target user is a live user based on the fusion result and a set probability threshold.

~~perform a similarity comparison between the front face image and a recorded front face image corresponding to the target electronic account; and perform a similarity comparison between the side face image and a recorded side face image corresponding to the target electronic account; and~~

~~perform identity recognition on the target user based on a front face similarity and a side face similarity.~~

~~14~~10. The apparatus according to claim ~~13~~6, wherein the processor is further configured to execute the instructions to~~wherein the second identifying unit is further specifically configured to~~:

determine the target user as an authorized user of the target electronic account if the front face similarity is greater than a first set threshold and the side face similarity is greater than a second set threshold. ~~standardize the side face image to obtain a standard side face image, wherein a size of the standard side face image is a set size, and a side face posture in the standard side face image is a set posture; extract a first side face feature vector of the target user based on the standard side face image;~~

~~acquire a second side face feature vector corresponding to the recorded side face image; and~~

~~calculate a similarity between the side face image and the recorded side face image based on the first side face feature vector and the second side face feature vector.~~

~~15~~11. A system for resource transfer, comprising: a client terminal device and a resource transfer server, the client terminal device being provided with a front face image capturing device and at least one side face image capturing device; wherein

the client terminal device is configured to control~~, when a target user intends to make a payment using a target electronic account,~~ the front face image capturing device to capture a front face image of ~~the~~ a target user and the side face image capturing device to capture a side face image

of the target user simultaneously; and send the front face image and the side face image to the resource transfer server; and

the resource transfer server is configured to acquire the front face image and the side face image of the target user; perform liveness detection and identity recognition on the target user based on the front face image and the side face image; and execute, if ~~the~~ a liveness detection result is that the target user is a live user and ~~the~~ an identity recognition result is that the target user is an authorized user of the target electronic account, resource transfer on the target electronic account,

wherein in performing the identity recognition on the target user, the resource transfer server is further configured to:

perform a first similarity comparison between the front face image of the target user and a recorded front face image corresponding to the target electronic account;

perform a second similarity comparison between the side face image of the target user and a recorded side face image corresponding to the target electronic account; and

perform the identity recognition on the target user based on a front face similarity determined from the first similarity comparison and a side face similarity determined from the second similarity comparison,

wherein in performing the second similarity comparison, the resource transfer server is further configured to:

standardize the side face image of the target user to obtain a standard side face image, wherein a size of the standard side face image is a set size, and a side face posture in the standard side face image is a set posture;

extract a first side face feature vector of the target user based on the standard side face image;

acquire a second side face feature vector corresponding to the recorded side face image; and

calculate a similarity between the side face image of the target user and the recorded side

face image based on the first side face feature vector and the second side face feature vector.

~~16. The system according to claim 15, wherein the resource transfer server is specifically configured to:~~

~~perform liveness detection on the target user based on the front face image and the side face image; and~~

~~perform identity recognition on the target user based on the front face image and the side face image if the liveness detection result is that the target user is a live user.~~

~~17~~12. The system according to claim ~~16~~11, wherein the resource transfer server is further specifically configured to:

input the front face image of the target user into a pre-trained first liveness detection model for processing to acquire a first probability outputted from the first liveness detection model; ~~and~~

input the side face image of the target user into a pre-trained second liveness detection model for processing to acquire a second probability outputted from the second liveness detection model; wherein the first probability and the second probability are each a probability that the target user is a live user; or the first probability and the second probability are each a probability that the target user is a non-live representation of a user; and

identify whether the target user is a live user based on the first probability and the second probability.

~~18~~13. The system according to claim ~~16~~11, wherein the resource transfer server is further specifically configured to:

input the front face image and the side face image of the target user into a pre-trained ~~third~~ liveness detection model for processing to acquire a ~~third~~ probability outputted from the ~~third~~ liveness detection model, wherein the ~~third~~ probability is a probability that the target user is a live

user, or the ~~third~~ probability is a probability that the target user is a non-live representation of a user; and

identify whether the target user is a live user based on the ~~third~~ probability and a set probability threshold.

~~19. The system according to claim 16, wherein the resource transfer server is further specifically configured to:~~

~~perform a similarity comparison between the front face image and a recorded front face image corresponding to the target electronic account;~~

~~perform a similarity comparison between the side face image and a recorded side face image corresponding to the target electronic account; and~~

~~perform identity recognition on the target user based on a front face similarity and a side face similarity.~~

~~20. A device for resource transfer, comprising:~~

~~a processor; and~~

~~a memory configured to store computer executable instructions, wherein the executable instructions, when being executed, enable the processor to:~~

~~acquire a front face image, and a side face image from at least one side, of a target user;~~

~~perform liveness detection and identity recognition on the target user based on the front face image and the side face image; and~~

~~execute, if the liveness detection result is that the target user is a live user and the identity recognition result is that the target user is an authorized user of a target electronic account, resource transfer on the target electronic account.~~

~~21. A storage medium configured to store computer executable instructions, the executable~~

~~instructions, when being executed, implementing the following processes:~~

~~acquiring a front face image, and a side face image from at least one side, of a target user;~~

~~performing liveness detection and identity recognition on the target user based on the front face image and the side face image; and~~

~~executing, if the liveness detection result is that the target user is a live user and the identity recognition result is that the target user is an authorized user of a target electronic account, resource transfer on the target electronic account.~~