

What Is Claimed Is:

1. A computer-implemented method for ~~facilitating processing a payment~~performing an action based on facial recognition, the method comprising:

~~obtaining, from~~training a kinetic machine learning model to recognize human bodies and
 5 postures, and/or movements associated with human bodies;

capturing, by a first camera, with a first field of view (FOV), visual information
 associated with a ~~payment scene~~ which includes ~~one or more customers;~~

———bodies of multiple people;

in response to receiving a ~~payment initialization~~user command, ~~obtaining, from~~capturing,
 10 by a second camera with a second FOV different from the first FOV, an image comprising faces
of the ~~one or more customers;~~

———identifying, based on the ~~multiple people;~~

analyzing, by a computer, the visual information associated with the ~~payment scene, a~~
~~body performing a movement while entering the payment initialization command;~~

15 ~~identifying a face in the image obtained from the second~~ captured by the first camera with
the first FOV to determine postures of the bodies of the multiple people;

identifying, from the bodies of the multiple people included in the scene, a body
responsible for entering the user command based on the determined postures of the bodies,
wherein a determined posture of the identified body comprises an extended arm for entering the
 20 user command,

wherein the analyzing and identifying is performed by the kinetic learning model machine;

matching, by the computer, a face in the image captured by the second camera with the
second FOV to the identified body based on user-identification information ~~associated with the~~
~~identified body;~~ and

25 ~~extracted from the visual information captured by the first camera with the first FOV;~~

extracting facial information from the ~~identified~~matched ~~face, thereby facilitating a~~
~~transaction of the payment based on;~~ and

using the extracted facial information- to perform an action corresponding to the received
user command,

30 ~~2. The method of claim 1, wherein the~~ wherein the visual information associated
with the ~~payment scene~~ comprises a video or a still image.

3. ~~The method of claim 1, wherein identifying the body performing the movement comprises:~~

~~— receiving timing information associated with the payment initialization command; and~~

5 ~~— analyzing the visual information based on the received timing information.~~

4. ~~The method of claim 3, wherein analyzing the visual information comprises one or more of:~~

~~— recognizing a posture of the body;~~

10 ~~— recognizing sequence whose frames each have a movement of a portion of the body; and~~

~~— recognizing a position of the body or the portion of the body.~~

5. ~~The method of claim 1, time index, and wherein the command is received at a distinguished time,~~

15 ~~the method further comprising selecting a proper subset of frames of the video sequence whose time indices within a predefined amount of time of the distinguished time, and wherein the analyzing is performed only with respect to the selected frames of the video sequence.~~

2. The method of claim 1, wherein the user-identification information comprises one or more of:

body posture information;

20 position information;

partial facial information; and

apparel information.

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25 3. The method of claim 1, wherein ~~identifying~~ matching the face to the identified body comprises:

extracting, from each face included in the image, user-identification information associated with each face; and

comparing the user-identification information associated with each face to the user-identification information associated with the identified body.

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4. The method of claim ~~6~~3, further comprising:
in response to failing to find a match or finding multiple matches between the user-
identification information associated with each face and the user-identification
information associated with the identified body, displaying an error message.

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5. The method of claim 1, further comprising:
identifying a ~~customer~~person based on the extracted facial information;
identifying an account corresponding to the identified ~~customer~~person; and
completing the ~~transaction~~action using the identified account.

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6. The method of claim 1, wherein the ~~payment initialization~~user command
comprises one or more of:

a tapping on a touchscreen display;
a keystroke on a keyboard; and
a press of a physical button.

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7. The method of claim 1, wherein ~~at~~the first field of view (FOV) of the first camera
is greater than ~~at~~the second FOV of the second camera.

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8. An apparatus for ~~processing a payment~~performing an action based on facial
recognition, comprising:

an input module residing on a computer configured to receive a ~~payment-~~
~~initialization~~user command;

a first camera ~~configured with a first field of view (FOV) coupled to obtain~~the computer,
wherein the first camera is configured to capture visual information associated with a ~~payment~~
scene which includes ~~one or more customers;~~
~~—bodies of multiple people;~~

a second camera coupled to the computer, wherein the second camera has a second camera FOV different from the first FOV and is configured to ~~obtain~~ capture an image comprising faces of the ~~one or more customers~~ multiple people, in response to the input module receiving the payment initialization user command;

5 ~~—— a body identification and~~

an image-processing module residing on the computer, wherein the image-processing module is configured to:

analyze the visual information captured by the first camera with the first FOV to determine postures of the bodies of the multiple people;

10 identify, ~~based on from~~ the visual information associated with bodies of the payment multiple people included in the scene, a body performing a movement while responsible for entering the payment initialization user command;

—— based on the determined postures of the bodies, wherein a determined posture of the identified body comprises an extended arm for entering the user command, wherein the analyzing and identifying is performed by the kinetic learning model machine;

15 ~~match a face identification module configured to identify a face in the image obtained captured~~ by the second camera with the second FOV to the identified body based on user-identification information ~~associated~~ extracted from the visual information captured by the ~~first camera~~ with the ~~identified body~~ first FOV; and

20 ~~—— a facial information extraction module configured to~~
extract facial information from the identified face, thereby facilitating a transaction of the ~~payment~~ matched face, to facilitate performing an action corresponding to the received user command based on the extracted facial information.

25 12. ~~—— The apparatus of claim 11,~~
wherein the visual information associated with the ~~payment~~ scene comprises a video ~~or sequence whose frames each have a still image.~~

13. ~~—— The apparatus of claim 11, wherein, while identifying the body performing the movement, the body identification module is configured to:~~

30 ~~—— receive timing information associated with the payment initialization command;~~
and

~~—— analyze the visual information based on the received timing information.~~

14. ~~The apparatus of claim 13, wherein analyzing the visual information comprises one or more of:~~

- ~~— recognizing a posture of the body;~~
- ~~— recognizing a movement of a portion of the body; and~~
- ~~— recognizing a position of the body or the portion of the body.~~

15. ~~The apparatus of claim 14~~time index,
and wherein the command is received at a distinguished time,
the method further comprising selecting a proper subset of frames of the video sequence
whose time indices within a predefined amount of time of the distinguished time,
and wherein the analyzing is performed only with respect to the selected frames of the
video sequence.

9. The apparatus of claim 8, wherein the user-identification information comprises one or more of:

- body posture information;
- position information;
- partial facial information; and
- apparel information.

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10. ~~The apparatus of claim 14~~8, wherein, while identifying~~matching~~the face, to the
~~face identification~~body performing the movement, the image- processing module is configured
to:

extract, from each face included in the image, user-identification information associated with each face; and

compare the user-identification information associated with each face to the user-identification information associated with the identified body.

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11. ~~The apparatus of claim 16~~10, further comprising a display configured to:
in response to the ~~face identification~~image-processing module failing to find a match or finding multiple matches between the user-identification information associated with each

face and the user-identification information associated with the identified body, display an error message.

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12. The apparatus of claim ~~11~~, further comprising:

- 5 ~~— a customer identification module configured to identify a customer~~8, wherein facilitating the action of the payment based on the extracted facial information;
- ~~— an account identification module configured to identify~~ comprises:
identifying a person based on the extracted facial information;
identifying an account corresponding to the identified customerperson; and
- 10 ~~— a transaction module configured to complete the transaction~~
completing the action using the identified account.

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13. The apparatus of claim ~~11~~8, wherein the ~~payment initialization~~user command comprises one or more of:

- 15 a tapping on a touchscreen display;
- a keystroke on a keyboard; and
- a press of a physical button.

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14. The apparatus of claim ~~11~~8, wherein ~~a~~the first field of view (FOV) of the first camera is greater than ~~a~~the second FOV of the second camera.