

CLAIMS

1. An information detection method, comprising:

determining key point information in a target identification from a target image based on
5 ~~a preset deep learning algorithm~~ a relationship among key points corresponding to four right
angles of an identification in a sample image, edges of the identification in the sample image, and
an identification photo in the identification in the sample image;

obtaining an image of the target identification from the target image according to the key
point information; and

10 determining information of a preset field from the image of the target identification
according to the image of the target identification and a preset identification template matching
the target identification.

2. The method according to claim 1, wherein the determining the key point information in
15 the target identification from the target image ~~based on the preset deep learning algorithm~~
comprises:

determining the key point information in the target identification from the target image
based on a preset deep learning algorithm, including:

_____determining, based on data of ~~a preset~~the sample image, ~~a~~the relationship among
20 key points corresponding to four right angles of ~~an~~the identification in the sample image, ~~and~~
edges of the identification in the sample image, and an identification photo~~avatar~~ in the
identification in the sample image, to construct a regression network model; and

_____determining the key point information in the target identification from the target
image based on the constructed regression network model.

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3. The method according to claim 2, wherein the regression network model comprises a first convolutional layer, a first pooling layer, a first dropout layer, a second convolutional layer, a second pooling layer, a second dropout layer, a third convolutional layer, a third dropout layer, a first fully connected layer, and a second fully connected layer, wherein the first convolutional layer is connected to an input layer, the second fully connected layer is connected to an output layer, and layers are connected in an order of: the first convolutional layer, the first pooling layer, the first dropout layer, the second convolutional layer, the second pooling layer, the second dropout layer, the third convolutional layer, the third dropout layer, the first fully connected layer, and the second fully connected layer.

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4. The method according to claim 3, wherein the first dropout layer, the second dropout layer, and the third dropout layer are used to increase preset noise information.

5. The method according to claim 4, wherein the first fully connected layer comprises a plurality of cells for mapping a learned distributed feature representation into a space of the sample image.

6. The method according to claim 5, wherein the second fully connected layer comprises eight cells, and the eight cells respectively correspond to the key points corresponding to the four right angles of the target identification and eight parameters.

7. The method according to claim 2, wherein the determining the key point information in the target identification from the target image based on the constructed regression network model comprises:

determining, based on the constructed regression network model, a region formed by the four right angles of the target identification from the target image; and

determining, based on the constructed regression network model, the key point information in the target identification from the determined region formed by the four right angles of the target identification.

8. The method according to claim 1, wherein before determining the information of the preset field from the image of the target identification according to the image of the target identification and the preset identification template matching the target identification, the method further comprises:

adjusting a size of the image of the target identification based on preset reference size information of the identification to obtain an image of the target identification matching the reference size information.

9. An information detection apparatus, comprising:

a key point determining module, configured to determine key point information in a target identification from a target image based on a preset deep learning algorithm, a relationship among key points corresponding to four right angles of an identification in a sample image, edges of the identification in the sample image, and an identification photo in the identification in the sample image;

an identification obtaining module, configured to obtain an image of the target identification from the target image according to the key point information; and

a field information determining module, configured to determine information of a preset field from the image of the target identification according to the image of the target identification and a preset identification template matching the target identification.

10. The apparatus according to claim 9, wherein the key point determining module is further configured to determine the key point information in the target identification from the target image based on a preset deep learning algorithm, the key point determining module comprises:

5 a model constructing unit, configured to determine, based on data of ~~a-preset~~the sample image, ~~a-the~~ relationship among key points corresponding to four right angles of ~~an-the~~ identification in the sample image, ~~and~~ edges of the identification in the sample image and an avatar-identification photo in the identification in the sample image, to construct a regression network model; and

10 a key point determining unit, configured to determine the key point information in the target identification from the target image based on the constructed regression network model.

11. The apparatus according to claim 10, wherein the regression network model comprises a first convolutional layer, a first pooling layer, a first dropout layer, a second convolutional layer,
15 a second pooling layer, a second dropout layer, a third convolutional layer, a third dropout layer, a first fully connected layer, and a second fully connected layer, wherein the first convolutional layer is connected to an input layer, the second fully connected layer is connected to an output layer, and layers are connected in an order of: the first convolutional layer, the first pooling layer, the first dropout layer, the second convolutional layer, the second pooling layer, the second
20 dropout layer, the third convolutional layer, the third dropout layer, the first fully connected layer, and the second fully connected layer.

12. The apparatus according to claim 11, wherein the first dropout layer, the second dropout layer, and the third dropout layer are used to increase preset noise information.

13. The apparatus according to claim 12, wherein the first fully connected layer comprises a plurality of cells for mapping a learned distributed feature representation into a space of the sample image.
- 5 14. The apparatus according to claim 13, wherein the second fully connected layer comprises eight cells, and the eight cells respectively correspond to the key points corresponding to the four right angles of the target identification and eight parameters.
15. The apparatus according to claim 10, wherein the key point determining unit is
10 configured to
- determine, based on the constructed regression network model, a region formed by the four right angles of the target identification from the target image; and
- determine, based on the constructed regression network model, key point information in the target identification from the determined region formed by the four right angles of the target
15 identification.
16. The apparatus according to claim 9, further comprising:
- an image adjusting module, configured to adjust a size of the image of the target identification based on preset reference size information of the identification to obtain an image
20 of the target identification matching the reference size information.
17. An information detection device, comprising:
- a processor; and
- a memory arranged to store computer executable instructions that, when executed, cause
25 the processor to:

determine key point information in a target identification from a target image based on ~~a preset deep learning algorithm~~ a relationship among key points corresponding to four right angles of an identification in a sample image, edges of the identification in the sample image, and an identification photo in the identification in the sample image;

- 5 obtain an image of the target identification from the target image according to the key point information; and

 determine information of a preset field from the image of the target identification according to the image of the target identification and a preset identification template matching the target identification.