CLAIMS

1. A certificate recognition method, comprising:

performing key point detection on a certificate image to obtain information of multiple key points of a certificate comprised in the certificate image, wherein the multiple key points comprise at least two boundary defining points of a first text area in the certificate, and the first text area comprises multiple text lines corresponding to a first character type;

determining, based on the information of the at least two boundary defining points of the first text area, an initial predicted position of each text line in the multiple text lines comprised in the first text area;

determining whether an abnormality existed in initial predicted positions of the multiple text lines;

in response to determining that the abnormality existed in the initial predicted positions of the multiple text lines, determining a text line having an abnormal initial predicted line height in the first text area;

in response to determining that an initial predicted line height of a first text line in the first text area is abnormal, performing correction on the initial predicted line height of the first text line to obtain a target predicted line height of the first text line;

performing, based on the target predicted line height of the first text line, correction on the initial predicted position of the first text line to obtain the target predicted position of the first text line;

performing, based on the target predicted position of each text line in the multiple text lines comprised in the first text area, recognition on at least one target text area corresponding to the first character type comprised in the certificate to obtain a text recognition result of the certificate.

2. The method according to claim 1, wherein the certificate further comprises a second text area, wherein the second text area comprises at least one text line corresponding to a second character type different from the first character type, and the second text area and the first text area have a same text content, wherein the first character type is Chinese character, and the second character type is ethnic minority character.

3. The method according to claim 1, wherein determining whether the abnormality existed in the initial predicted positions of the multiple text lines comprises:

in response to a presence of a text line having an initial predicted line height greater than a first preset line height in the multiple text lines, determining that the abnormality existed in the initial predicted positions of the multiple text lines.

4. The method according to claim 1, wherein performing correction on the initial predicted line height of the first text line to obtain the target predicted line height of the first text line comprises:

determining, based on a first predicted average line height of the multiple text lines comprised in the first text area and the initial predicted line height of the first text line, a second predicted average line height of at least one second text line other than the first text line in the multiple text lines; and

performing, based on the second predicted average line height, correction on the initial predicted line height of the first text line .

5. The method according to claim 4, wherein performing, based on the second predicted average line height, correction on the initial predicted line height of the first text line comprises:

in response to the second predicted average line height exceeding a first preset value, correcting the line height of the first text line as a second preset value; and/or

in response to the second predicted average line height being less than or equal to the second preset value, correcting the line height of the first text line as the second predicted average line height.

6. The method according to any one of claims 1 to 5, wherein performing correction on the initial predicted line height of the first text line to obtain the target predicted line height of the first text line comprises:

performing correction on the initial predicted line height of the first text line to obtain a corrected line height of the first text line; and

in response to the corrected line height of the first text line being greater than or equal to the second preset value, taking an initial predicted line height corresponding to an initial predicted position of a next text line of the first text line as the target predicted line height of the first text line, and/or

in response to the corrected line height of the first text line being less than a third preset value, taking the corrected line height of the first text line as the target predicted line height of the first text line.

7. The method according to any one of claims 1 to 6, wherein performing correction on the initial predicted position of the first text line based on the target predicted line height of the first text line to obtain the target predicted position of the first text line comprises:

performing, based on the target predicted line height of the first text line, adjustment on a predicted upper boundary corresponding to the initial predicted position of the first text line to obtain a target predicted upper boundary of the first text line.

8. The method according to any one of claims 1 to 7, wherein determining the text line having the abnormal initial predicted line height in the first text area comprises:

determining, based on at least one of the first predicted average line height of the multiple text lines in the first text area or an initial predicted line height corresponding to an initial predicted position of at least one adjacent line of the first text line, whether the initial predicted line height of the first text line is abnormal.

9. The method according to any one of claims 1 to 8, wherein performing, based on the target predicted position of each text line in the multiple text lines comprised in the first text area, recognition on at least one target text area corresponding to the first character type comprised in the certificate comprises:

performing, based on the target predicted line heights corresponding to the target predicted positions of the multiple text lines comprised in the first text area, correction on the initial predicted position of a third text area in the at least one target text area to obtain the target predicted position of the third text area; and

obtaining, based on the target predicted position of the third text area, a text recognition result of the third text area.

10. The method according to claim 9, wherein performing, based on the target predicted line heights corresponding to the target predicted positions of the multiple text lines comprised in the first text area, correction on the initial predicted position of the third text area in the at least one target text area to obtain the target predicted position of the third text area comprises:

determining, based on the target predicted line heights of the multiple text lines comprised in the first text area, a target predicted average line height of the multiple text lines in the first text area; and

performing, based on the target predicted average line height and an initial predicted line

height corresponding to an initial predicted position of a third text line comprised in the third text area, correction on the initial predicted position of the third text line to obtain a final predicted position of the third text line.

11. The method according to any one of claims 1 to 10, wherein the certificate comprises an identity card; and/or

the first text area comprises an information area of an address field.

12. A certificate recognition apparatus, comprising:

a key point detection unit, configured to perform key point detection on a certificate image to obtain information of multiple key points of a certificate comprised in the certificate image, wherein the multiple key points comprise at least two boundary defining points of a first text area in the certificate, and the first text area comprises multiple text lines corresponding to a first character type; and

a text recognition unit, configured to determine, based on the information of the multiple key points, a text recognition result of the certificate,

wherein the text recognition unit comprises:

a position prediction module, configured to determine, based on information of the at least two boundary defining points of the first text area, a target predicted position of each text line in the multiple text lines comprised in the first text area ; and

a text recognition module, configured to, perform, based on the target predicted position of each text line in the multiple text lines comprised in the first text area, recognition on at least one target text area corresponding to the first character type comprised in the certificate to obtain the text recognition result of the certificate,

wherein the position prediction module is further configured to determine, based on the information of the at least two boundary defining points of the first text area, an initial predicted position of each text line in the multiple text lines comprised in the first text area; determine whether an abnormality existed in initial predicted positions of the multiple text lines; and in response to determining that the abnormality existed in the initial predicted positions of the multiple text lines, perform correction processing on the initial predicted positions of the multiple text lines comprised in the first text area to obtain target predicted positions of the multiple text lines,

wherein the position prediction module is further configured to: in response to determining that the abnormality existed in the initial predicted positions of the multiple text

lines, determine a text line having an abnormal initial predicted line height in the first text area; in response to determining that an initial predicted line height of a first text line in the first text area is abnormal, perform correction on the initial predicted line height of the first text line to obtain a target predicted line height of the first text line; and perform, based on the target predicted line height of the first text line, correction on the initial predicted position of the first text line to obtain the target predicted position of the first text line.

13. An electronic device, comprising: a memory, configured to store executable instructions; and

a processor, configured to communicate with the memory to execute the executable instructions so as to complete the operations of the certificate recognition method according to any one of claims 1 to 11.

14. A computer-readable storage medium, configured to store computer-readable instructions, wherein when the instructions are executed, the operations of the certificate recognition method according to any one of claims 1 to 11 are executed.

15. A computer program, wherein the computer program cause a computer implement the certificate recognition method according to any one of claims 1 to 11.