[0005a]

According to an aspect, the present disclosure refers to an image-processing device comprising:

an acquisition means (102) for acquiring image data, including a recorded character string to be recorded in a memory by an operator and a non-recorded character string that is not to be recorded in the memory by the operator, of a document;

a feature amount extraction unit (103) for

generating first feature amount, including an attribute and coordinates, of the recorded character string generated as an optical reading result of the document, the attribute indicating information expressed by at least one of numbers, alphabetical letters, hiragana letters, kanji, a number of characters, character heights, and fonts, the coordinates indicating a range of a character string in the document, and

generating second feature amount, including the attribute and the coordinates, of the non-recorded character string generated as the optical reading result of the document;

a grouping unit (106) for grouping a plurality of documents based on second feature amounts between the plurality of documents into a plurality of groups;

characterised by

a reading target feature amount generation unit (104) for generating group first feature amount including an average of first feature amounts of documents belonging to each of the plurality of groups, and group second feature amount including an average of second feature amounts of documents belonging to the each of the plurality of groups; wherein the feature amount extraction unit (103) generates third feature amount, including the

attribute and the coordinates, of the recorded character string generated as the optical reading result of a new document,

a group-specifying means (107) for determining whether the group second feature amount of any of the plurality of groups is identified in the new document, from among the plurality of groups, determining that the group into which the new document is grouped is specifiable when the group second feature amount of the non-recorded string in the new document is identified, and determining that no group is specifiable when the group second feature amount of the non-recorded character string in the new document is not identified;

a recording means (105) for

acquiring the group first feature amount of the group for which the group second feature amount has been identified,

determining whether or not the new document has the third feature amount of a character string corresponding to the coordinates of each recorded character string included in the acquired group first feature amount,

determining, when there is the third feature amount corresponding to the coordinates of the each recorded character string included in the acquired group first feature amount, whether or not the attribute of the each recorded character string included in the group first feature amount matches the attribute of each recorded character string included in the third feature amount, and

generating and recording a screen image of the new document that has an input entry in a range of the coordinates where there is no corresponding third feature amount of the character string in the new document; and

a work target determination means (108) for determining that the new document is the document on which checking work for grouping the new document is required when no

group of the new document is determined to be specifiable.

[0005b]

According to an aspect, the present disclosure refers to an image processing method comprising:

acquiring image data, including a recorded character string to be recorded in a memory by an operator and a non-recorded character string that is not to be recorded in the memory by the operator, of a document;

generating first feature amount, including an attribute and coordinates, of the recorded character string generated as an optical reading result of the document, the attribute indicating information expressed by at least one of numbers, alphabetical letters, hiragana letters, kanji, a number of characters, character heights, and fonts, the coordinates indicating a range of a character string in the document;

generating second feature amount, including the attribute and the coordinates, of the non-recorded character string generated as the optical reading result of the document,

grouping a plurality of documents based on second feature amounts between the plurality of documents into a plurality of groups;

characterised by

generating group first feature amount including an average of first feature amounts of documents belonging to each of the plurality of groups, and group second feature amount including an average of second feature amounts of documents belonging to the each of the plurality of groups;

generating third feature amount, including the attribute and the coordinates, of the recorded character string generated as the optical reading result of a new document;

determining whether the group second feature amount of any of the plurality of groups is identified in the new document, from among the plurality of groups;

determining that the group into which the new document is grouped is specifiable when the group second feature amount of the non-recorded string in the new document is identified, and determining that no group is specifiable when the group second feature amount of the non-recorded character string in the new document is not identified;

acquiring the group first feature amount of the group for which the group second feature amount has been identified;

determining whether or not the new document has the third feature amount of a character string corresponding to the coordinates of each recorded character string included in the acquired group first feature amount;

determining, when there is the third feature amount corresponding to the coordinates of the each recorded character string included in the acquired group first feature amount, whether or not the attribute of the each recorded character string included in the group first feature amount matches the attribute of each recorded character string included in the third feature amount;

generating and recording a screen image of the new document that has an input entry in a range of the coordinates where there is no corresponding third feature amount of the character string in the new document; and

determining that the new document is the document on which checking work for grouping the new document is required when no group of the new document is determined to be specifiable.

[0005c]

According to an aspect, the present disclosure refers to a program causing a computer of an image-processing device to perform the method according to the above aspect.

[0006]

According to a first example of the present disclosure, an image-processing device includes: an acquisition means for acquiring form image data, including a recorded character string that is a target of being recorded in a memory and a non-recorded character string that is not the target of being recorded in the memory, generated as an optical reading result of a form image; a group-specifying means for determining whether feature amount of the non-recorded character string of any of kind of groups is identified based on the acquired form image data, from among a plurality of kinds of groups each having the feature amount of attributes and coordinates of non-recorded character strings of a plurality of pieces of form image data, determining that a kind of groups into which the acquired form image data is grouped is specifiable when the feature amount of the non-recorded string is identified, and determining that the kind of groups is unspecifiable when the feature amount of the non-recorded string is not identified; and a work target determination means for determining that the form image data is the form image data on which checking work for the kind of groups is required when the kind of groups of the acquired form image data is determined to be unspecifiable, the checking work indicating a process to acquire the feature amount of the form image data.

[0007]

According to a second example of the present disclosure, an image processing method includes: acquiring form image data, including a recorded character string that is a target of being recorded in a memory and a non-recorded character string that is not the target of being recorded in the memory, generated as an optical reading result of a form image; determining whether feature amount of the non-recorded character string of any of kind of groups is identified based on the acquired form image data, from among a plurality of kinds of groups each having the feature amount of attributes and coordinates

of non-recorded character strings of a plurality of pieces of form image data; determining that a kind of groups into which the acquired form image data is grouped is specifiable when the feature amount of the non-recorded string is identified, and determining that the kind of groups is unspecifiable when the feature amount of the non-recorded string is not identified; and determining that the form image data is the form image data on which checking work for the kind of groups is required when the kind of groups of the acquired form image data is determined to be unspecifiable, the checking work indicating a process to acquire the feature amount of the form image data.

[0008]

According to a third example of the present disclosure, a non-transitory computer readable storage medium stores a program causing a computer of an image-processing device to perform processing of: acquiring form image data, including a recorded character string that is a target of being recorded in a memory and a non-recorded character string that is not the target of being recorded in the memory, generated as an optical reading result of a form image; determining whether feature amount of the non-recorded character string of any of kind of groups is identified based on the acquired form image data, from among a plurality of kinds of groups each having the feature amount of attributes and coordinates of non-recorded character strings of a plurality of pieces of form image data; determining that a kind of groups into which the acquired form image data is grouped is specifiable when the feature amount of the non-recorded string is identified, and determining that the kind of groups is unspecifiable when the feature amount of the non-recorded string is not identified; and determining that the form image data is the form image data on which checking work for the kind of groups is required when the kind of groups of the acquired form image data is determined to be unspecifiable, the checking work indicating a process to acquire the feature amount of

the form image data.

CLAIMS

1. An image-processing device comprising:

an acquisition means for acquiring image data, including a recorded character string to be recorded in a memory by an operator and a non-recorded character string that is not to be recorded in the memory by the operator, of a document;

a feature amount extraction unit for

generating first feature amount, including an attribute and coordinates, of the recorded character string generated as an optical reading result of the document, the attribute indicating information expressed by at least one of numbers, alphabetical letters, hiragana letters, kanji, a number of characters, character heights, and fonts, the coordinates indicating a range of a character string in the document, and

generating second feature amount, including the attribute and the coordinates, of the non-recorded character string generated as the optical reading result of the document;

a grouping unit for grouping a plurality of documents based on second feature amounts between the plurality of documents into a plurality of groups;

characterised by

a reading target feature amount generation unit for generating group first feature amount including an average of first feature amounts of documents belonging to each of the plurality of groups, and group second feature amount including an average of second feature amounts of documents belonging to the each of the plurality of groups;

wherein the feature amount extraction unit generates third feature amount, including the attribute and the coordinates, of the recorded character string generated as the optical reading result of a new document,

a group-specifying means for determining whether the group second feature

amount of any of the plurality of groups is identified in the new document, from among the plurality of groups, determining that the group into which the new document is grouped is specifiable when the group second feature amount of the non-recorded string in the new document is identified, and determining that no group is specifiable when the group second feature amount of the non-recorded character string in the new document is not identified;

a recording means for

acquiring the group first feature amount of the group for which the group second feature amount has been identified,

determining whether or not the new document has the third feature amount of a character string corresponding to the coordinates of each recorded character string included in the acquired group first feature amount,

determining, when there is the third feature amount corresponding to the coordinates of the each recorded character string included in the acquired group first feature amount, whether or not the attribute of the each recorded character string included in the group first feature amount matches the attribute of each recorded character string included in the third feature amount, and

generating and recording a screen image of the new document that has an input entry in a range of the coordinates where there is no corresponding third feature amount of the character string in the new document; and

a work target determination means for determining that the new document is the document on which checking work for grouping the new document is required when no group of the new document is determined to be specifiable.

2. The image-processing device according to claim 1, further comprising:

a work data generation means for generating work data, which is a procedure of works related to the document, indicating that the document on which the checking work is required is output to a terminal used by the operator , before the document on which the checking work is not required is output to the terminal.

3. The image-processing device according to claim 2, wherein the work data generation means is configured to generate the work data in which a priority of the document on which the checking work is required is higher than the priority of the document on which the checking work is not required.

4. The image-processing device according to claim 2 or 3, wherein:

the grouping means groups the group to which the document on which the checking work is required belongs by grouping the plurality of documents into the plurality of groups based on correlation or similarity of the second feature amounts between the plurality of documents, in response to an operation in the checking work by the operator.

5. The image-processing device according to any one of claims 2 to 4, wherein the work data generation means is configured to determine the number of documents used for analysis of the feature amounts among the plurality of documents on which the checking work is required, and generate the work data which indicates that the determined number of documents is output to the operator before the other document is output to the operator.

6. The image-processing device according to claim 1,

wherein the work target determination means specifies the work information, which is used to perform a work by the operator, generated after it is determined that the new document has no third feature amount, among the work information associated with a determination result indicating that the group can be determined.

7. An image processing method comprising:

acquiring image data, including a recorded character string to be recorded in a memory by an operator and a non-recorded character string that is not to be recorded in the memory by the operator, of a document;

generating first feature amount, including an attribute and coordinates, of the recorded character string generated as an optical reading result of the document, the attribute indicating information expressed by at least one of numbers, alphabetical letters, hiragana letters, kanji, a number of characters, character heights, and fonts, the coordinates indicating a range of a character string in the document;

generating second feature amount, including the attribute and the coordinates, of the non-recorded character string generated as the optical reading result of the document,

grouping a plurality of documents based on second feature amounts between the plurality of documents into a plurality of groups;

characterised by

generating group first feature amount including an average of first feature amounts of documents belonging to each of the plurality of groups, and group second feature amount including an average of second feature amounts of documents belonging to the each of the plurality of groups;

generating third feature amount, including the attribute and the coordinates, of the recorded character string generated as the optical reading result of a new document;

determining whether the group second feature amount of any of the plurality of groups is identified in the new document , from among the plurality of groups;

determining that the group into which the new document is grouped is specifiable when the group second feature amount of the non-recorded string in the new document is identified, and determining that no group is specifiable when the group second feature amount of the non-recorded character string in the new document is not identified;

acquiring the group first feature amount of the group for which the group second feature amount has been identified;

determining whether or not the new document has the third feature amount of a character string corresponding to the coordinates of each recorded character string included in the acquired group first feature amount;

determining, when there is the third feature amount corresponding to the coordinates of the each recorded character string included in the acquired group first feature amount, whether or not the attribute of the each recorded character string included in the group first feature amount matches the attribute of each recorded character string included in the third feature amount;

generating and recording a screen image of the new document that has an input entry in a range of the coordinates where there is no corresponding third feature amount of the character string in the new document; and

determining that the new document is the document on which checking work for grouping the new document is required when no group of the new document is determined to be specifiable.

8. A non-transitory computer-readable storage medium that stores a program causing a computer of an image-processing device to perform the method according to claim 7.

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