

CLAIMS

1. An image analysis device, comprising:
 - an image storage unit that stores an image and information of a detected object included in the image;
 - an image input unit that receives a target image serving as a target in which an object is detected;
 - a similar image search unit that searches for a similar image having a feature quantity similar to a feature quantity extracted from the target image and the information of the detected object included in the similar image from the image storage unit;
 - a parameter deciding unit that decides a parameter used in a detection process performed on the target image based on the information of the detected object included in the similar image;
 - a detecting unit that detects an object from the target image according to the decided parameter;
 - an image registering unit that accumulates the detected object and the target image in the image storage unit; and
 - a data output unit that outputs the information of the detected object,
 - wherein the parameter deciding unit generates a list of IDs of the detected objects included in the similar image and transfers the list to the detecting unit,
 - the detecting unit acquires information of a similar object having a feature quantity similar to the feature quantity of the object IDs included in the list from the image storage unit and the similar object being added to the list, and
 - the detecting unit detects an object included in the target image based on the feature quantity of the object included in the list.
2. The image analysis device according to claim 1,
 - wherein the information stored in the image storage unit includes a feature quantity extracted from the image, position information of the detected object, and a feature quantity extracted from the detected object.
3. The image analysis device according to claim 2,
 - wherein the parameter deciding unit performs a parameter estimation process of deciding a size and a scanning range of a scanning window used in the detection process from the position information of the detected object included in the similar image.
4. The image analysis device according to claim 3,
 - wherein the parameter deciding unit performs the parameter estimation process according to an input from a user.
5. The image analysis device according to claim 2,
 - wherein the detecting unit detects a region having a feature quantity similar to

a feature quantity of the detected object included in the similar image as an object included in the target image.

6. The image analysis device according to claim 2,
 wherein the image input unit performs a process of grouping a plurality of target images based on the feature quantity of the target image when the plurality of target images are input,
 the parameter deciding unit decides one parameter on a group generated in the image input unit, and
 the detecting unit performs detection on the group using the one parameter.

7. An image analysis system, comprising:
 a camera that photographs an image;
 an image storage unit that stores an image and information of a detected object included in the image;
 an image input unit that receives a target image serving as a target in which an object is detected;
 a similar image search unit that searches for a similar image having a feature quantity similar to a feature quantity extracted from the target image and the information of the detected object included in the similar image from the image storage unit;
 a parameter deciding unit that decides a parameter used in a detection process performed on the target image based on the information of the detected object included in the similar image;
 a detecting unit that detects an object from the target image according to the decided parameter;
 an image registering unit that accumulates the detected object and the target image in the image storage unit; and
 a display unit that displays the information of the detected object,
 wherein the parameter deciding unit generates a list of IDs of the detected objects included in the similar image and transfers the list to the detecting unit,
 the detecting unit acquires information of a similar object having a feature quantity similar to the feature quantity of the object IDs included in the list from the image storage unit and the similar object being added to the list, and
 the detecting unit detects an object included in the target image based on the feature quantity of the object included in the list.

8. The image analysis system according to claim 7,
 wherein the information stored in the image storage unit includes a feature quantity extracted from the image, position information of the detected object, and a feature quantity extracted from the detected object.

9. The image analysis system according to claim 8,
 wherein the parameter deciding unit performs a parameter estimation process

of deciding a size and a scanning range of a scanning window used in the detection process from the position information of the detected object included in the similar image.

10. The image analysis system according to claim 9, further comprising,
an external input unit that receives an input from a user,
wherein the parameter deciding unit performs the parameter estimation process according to an input from the external input unit.

11. The image analysis system according to claim 8,
wherein the detecting unit detects a region having a feature quantity similar to a feature quantity of the detected object included in the similar image as an object included in the target image.

12. The image analysis system according to claim 8,
wherein the image input unit performs a process of grouping a plurality of target images based on the feature quantity of the target image when the plurality of target images are input,
the parameter deciding unit decides one parameter on a group generated in the image input unit, and
the detecting unit performs detection on the group using the one parameter.

13. An image analysis method of detecting an object from an input target image, comprising:

an extraction step of extracting a feature quantity of the target image;
a search step of searching for a similar image having a feature quantity similar to the extracted feature quantity of the target image from an image storage unit;
a decision step of deciding a parameter used in a detection process on the target image based on information of a detected object included in the searched similar image;
a detection step of performing a detection process on the target image based on the decided parameter to detect an object;
a step of outputting the object detected from the target image; and
a storage step of storing the target image and the detected object in the image storage unit,

wherein in the decision step of deciding a parameter, a list of IDs of the detected objects included in the similar image is generated and transferred to the detection step,

in the detection step, information of a similar object having a feature quantity similar to the feature quantity of the object IDs included in the list is acquired from the image storage unit and added to the list, and

in the detection step, an object included in the target image is detected based on the feature quantity of the object included in the list.