CLAIMS

1. A face authentication apparatus comprising:

an acquisition means for acquiring face image data of a person from an image capturing apparatus,

a determination means for determining whether registration data, having degree of matching with the face image data that is equal to or more than a threshold value, is registered in a storage device,

a prompting means for prompting the person to input identifying information when the determination means determines that the registration data is not registered in the storage device,

a reception means for receiving the identifying information input,

a registration after input reception means for registering the face image data as registration data in the storage device when the reception means successfully receives the identifying information, and

a setting means for setting a threshold value, to be used by the determination means, in association with the registration data registered by the registration after input reception means.

2. The face authentication apparatus according to claim 1, wherein

the acquisition means acquires the face image data from different image capturing apparatuses,

the registration after input reception means registers the face image data as registration data in association with the image capturing apparatus from which the face image data is acquired.

3. The face authentication apparatus according to claim 1 or 2, wherein

the registration after input reception means registers registration data in a storage area, being different from a storage area that registration data is registered in advance, in the storage device.

4. The face authentication apparatus according to any one of claims 1 to 3, further comprising:

an additional registration means for registering the face image data as registration data in the storage device when the determination means determines that the registration data, having degree of matching with the face image data that is equal to or more than a threshold value, is registered in the storage device, wherein,

the setting means sets a threshold value, being determined from the degree of matching

between the face image data and the registration data used for determination by the determination means, in association with the registration data registered by the additional registration means.

5. The face authentication apparatus according to claim 4, wherein

the acquisition means acquires the face image data from different image capturing apparatuses,

the additional registration means registers the face image data as registration data in association with the image capturing apparatus from which the face image data is acquired.

6. The face authentication apparatus according to claim 5, further comprising:

a classification means for classifying the image capturing apparatuses into one or more groups based on an installation environment of each of the image capturing apparatuses, wherein

when a number of times the threshold value is set for the registration data registered in association with the image capturing apparatus in the group classified by the classification means is P (P = 1), the setting means sets a predetermined threshold value, and

when a number of times the threshold value is set for the registration data registered in association with the image capturing apparatus in the group classified by the classification means is P ($P \geq 2$), the setting means sets a value obtained by $((M \times (P - 1) + N) / P)$, which is represented by the threshold value M set immediately before and the degree of matching N between the face image data and the registration data used by the determination means for determination, as the threshold value.

7. The face authentication apparatus according to any one of claims 4 to 7, wherein

the additional registration means registers registration data in a storage area, being different from a storage area that registration data is registered in advance, in the storage device.

8. The face authentication apparatus according to any one of claims 4 to 6, further comprising:

an identification means for verifying an identity of the person, wherein

the additional registration means registers registration data in the storage device when the identification means successfully verifies the identity of the person.

9. A face authentication method comprising:

acquiring face image data of a person from an image capturing apparatus,

determining whether registration data, having degree of matching with the face image data that is equal to or more than a threshold value, is registered in a storage device,

prompting the person to input identifying information when it is determined that the registration data is not registered in the storage device,

receiving the identifying information input,

registering the face image data as registration data in the storage device when the identifying information is successfully received, and

setting a threshold value, to be used to determine whether registration data having the degree of matching equal to or more than a threshold value is registered, in association with the registration data registered.

~~10. The face authentication method according to claim 9, wherein~~

~~when acquiring the face image data of the person from the image capturing apparatus, the face image data is acquired from different image capturing apparatuses,~~

~~when registering the face image data as registration data, the face image data is registered as the registration data in association with the image capturing apparatus from which the face image data is acquired.~~

~~11. The face authentication method according to claim 9 or 10, wherein~~

~~when registering the face image data as registration data,~~

~~the registration data is registered in a storage area, being different from a storage area that registration data is registered in advance, in the storage device.~~

~~12. The face authentication method according to any one of claims 9 to 11, further comprising:~~

~~registering the face image data as registration data in the storage device when it is determined that registration data, having the degree of matching with the face image data that is equal to or more than a threshold value, is registered in the storage device, wherein,~~

~~when setting a threshold value in association with the registration data,~~

~~a threshold value, being determined from the degree of matching between the face image data and the registration data used in determining whether registration data having the degree of matching equal to or more than a threshold value is registered in the storage device, is set in association with the registration data registered when it is determined that the registration data having the degree of matching equal to or more than a threshold value is registered.~~

~~13. The face authentication method according to claim 12, wherein~~

~~when acquiring the face image data, the face image data is acquired from different image capturing apparatuses,~~

~~when determining that registration data having the degree of matching equal to or more than a threshold value is registered in the storage device and registering the face image data as registration data, the face image data is registered as the registration data in association with the image capturing apparatus from which the face image data is acquired.~~

~~14. The face authentication method according to claim 13, further comprising:~~

~~classifying the image capturing apparatuses into one or more groups based on an installation environment of each of the image capturing apparatuses, wherein~~

~~when setting a threshold value in association with the registration data,~~

~~when a number of times the threshold value is set for the registration data registered in association with the image capturing apparatus in the group classified is P (P = 1), a predetermined threshold value is set, and~~

~~when a number of times the threshold value is set for the registration data registered in association with the image capturing apparatus in the group classified is P (P ≥ 2), a value obtained by ((M × (P − 1) + N) / P), which is represented by the threshold value M set immediately before and the degree of matching N between the face image data and the registration data used in determining whether registration data having the degree of matching equal to or more than a threshold value is registered, as the threshold value.~~

~~15. The face authentication method according to any one of claims 12 to 14, wherein~~

~~when determining that registration data having the degree of matching equal to or more than a threshold value is registered in the storage device and registering the face image data as registration data,~~

~~the registration data is registered in a storage area, being different from a storage area that registration data is registered in advance, in the storage device.~~

~~16. The face authentication method according to any one of claims 12 to 15, further comprising:~~

~~verifying an identity of the person, wherein~~

~~when determining that registration data having the degree of matching equal to or more than a threshold value is registered in the storage device and registering the face image data as~~

~~registration data, registration data is registered in the storage device when the identity of the person is successfully verified.~~

~~17~~10. A computer-readable recording medium that includes recorded thereon, a program including instructions that cause a computer to execute:

determining whether registration data, having degree of matching with the face image data of a person acquired from an image capturing apparatus that is equal to or more than a threshold value, is registered in a storage device,

prompting the person to input identifying information when it is determined that the registration data is not registered in the storage device,

receiving the identifying information input,

registering the face image data as registration data in the storage device when an input of the identifying information is successfully received, and

setting a threshold value, to be used to determine whether registration data having the degree of matching equal to or more than a threshold value is registered, in association with the registration data registered.

~~18. The computer-readable recording medium according to claim 17, wherein~~

~~when the face image data is acquired from different image capturing apparatuses,~~

~~when registering the face image data as registration data, the face image data is registered as the registration data in association with the image capturing apparatus from which the face image data is acquired.~~

~~19. The computer-readable recording medium according to claim 17 or 18, wherein~~

~~when registering the face image data as registration data,~~

~~the registration data is registered in a storage area, being different from a storage area that registration data is registered in advance, in the storage device.~~

~~20. The computer-readable recording medium according to any one of claims 17 to 19, wherein~~

~~the program further includes an instruction that cause the computer to execute:~~

~~registering the face image data as registration data in the storage device when it is determined that registration data having the degree of matching equal to or more than a threshold value is registered in the storage device, and wherein,~~

~~when setting a threshold value in association with the registration data,~~

~~a threshold value, being determined from the degree of matching between the face image data and the registration data used in determining whether registration data having the degree of matching equal to or more than a threshold value is registered in the storage device, is set in association with the registration data registered when it is determined that the registration data having the degree of matching equal to or more than a threshold value is registered.~~

~~21. The computer-readable recording medium according to claim 20, wherein~~

~~when the face image data is acquired from different image capturing apparatuses,~~

~~when determining that registration data having the degree of matching equal to or more than a threshold value is registered in the storage device and registering the face image data as registration data, the face image data is registered as the registration data in association with the image capturing apparatus from which the face image data is acquired.~~

~~22. The computer-readable recording medium according to claim 21, further comprising:~~

~~classifying the image capturing apparatuses into one or more groups based on an installation environment of each of the image capturing apparatuses, wherein~~

~~when setting a threshold value in association with the registration data,~~

~~when a number of times the threshold value is set for the registration data registered in association with the image capturing apparatus in the group classified is P (P = 1), a predetermined threshold value is set, and~~

~~when a number of times the threshold value is set for the registration data registered in association with the image capturing apparatus in the group classified is P (P ≥ 2), a value obtained by ((M × (P − 1) + N) / P), which is represented by the threshold value M set immediately before and the degree of matching N between the face image data and the registration data used in determining whether registration data having the degree of matching equal to or more than a threshold value is registered, as the threshold value.~~

~~23. The computer-readable recording medium according to any one of claims 20 to 22, wherein~~

~~when determining that registration data having the degree of matching equal to or more than a threshold value is registered in the storage device and registering the face image data as registration data,~~

~~the registration data is registered in a storage area, being different from a storage area that registration data is registered in advance, in the storage device.~~

~~24. The computer-readable recording medium according to any one of claims 20 to 23, wherein~~

~~the program further includes an instruction that cause the computer to execute:~~

~~verifying an identity of the person, and wherein~~

~~when determining that registration data having the degree of matching equal to or more than a threshold value is registered in the storage device and registering the face image data as registration data, registration data is registered in the storage device when the identity of the person is successfully verified.~~