

CLAIMS

1. A video analysis apparatus connected to an image capturing apparatus including a plurality of cameras, wherein

the video analysis apparatus,

for a plurality of persons in images captured ~~captured by the cameras,~~

tracks at least one of the plurality of persons,

detects a plurality of parts of the tracked person,

for the plurality of parts detected, on a basis of information defining scores used to determine a best shot of each of the parts, computes a score for each part for each of frames of videos from the cameras,

compares, for each of the parts, the scores for each part computed for each of the frames to determine a best shot of each of the parts,

stores, for each of the parts, a feature value in association with each part, and

~~compares the~~ feature values of each of the parts of the plurality of persons to determine identity of the persons,

wherein the video analysis apparatus includes a

storage section,

the storage section stores a parts DB in which each
of the parts is associated with a feature value of each
part, and

the parts DB stores, for one of the plurality of
parts, a parts type representing a type of the part, the
feature value of the part, and the score for the part in
association with a parts ID of the part,

wherein the storage section, for one person
trajectory of the person in an image captured by one of
the plurality of cameras, stores a best shot camera table
in which a person trajectory ID corresponding to the
person trajectory is associated with the parts IDs of a
plurality of parts in the person trajectory, and

wherein the storage section stores a best shot merge
table managing, for each part, the parts ID with a high
score in a case where person trajectories of the
plurality of persons in images captured by the plurality
of cameras indicate an identical person.

2. The video analysis apparatus according to claim
 1, wherein

the video analysis apparatus detects at least two
 types of a head, a face, a set of clothes, a bag, a pair
 of shoes, a hat, and a watch of each of the persons as
 the plurality of parts.

3. The video analysis apparatus according to claim 1, wherein

the video analysis apparatus selects, for each of the plurality of parts, items of an area, a frontal degree, a geometric feature, a luminance value, and a detection reliability, and uses an item score defined for each of the selected items to compute a score for each of the parts.

~~4. The video analysis apparatus according to claim 1, wherein~~

~~the video analysis apparatus includes a storage section,~~

~~the storage section stores a parts DB in which each of the parts is associated with a feature value of each part, and~~

~~the parts DB stores, for one of the plurality of parts, a parts type representing a type of the part, the feature value of the part, and the score for the part in association with a parts ID of the part.~~

~~5. The video analysis apparatus according to claim 4, wherein~~

~~the storage section, for one person trajectory of the person in an image captured by one of the plurality of cameras, stores a best shot camera table in which a person trajectory ID corresponding to the person~~

~~trajectory is associated with the parts IDs of a plurality of parts in the person trajectory.~~

~~6. The video analysis apparatus according to claim 5, wherein~~

~~the storage section stores a best shot merge table managing, for each part, the parts ID with a high score in a case where person trajectories of the plurality of persons in images captured by the plurality of cameras indicate an identical person.~~

~~74.~~ A person retrieval system comprising:

an image capturing apparatus including a plurality of cameras; and

a video analysis apparatus, wherein

the video analysis apparatus,

for a plurality of persons in images captured

~~captured by the cameras,~~

tracks at least one of the plurality of persons,

detects a plurality of parts of the tracked person,

for the plurality of parts detected, on a basis of information defining scores used to determine a best shot of each of the parts, computes a score for ~~the~~ each part for each of frames of videos from the cameras,

compares, for each of the parts, the scores

for each part computed for each of the frames to
determine a best shot of each of the parts,

stores, for each of the parts, a feature
value in association with each part in a storage section,
and

compares ~~the~~ feature values of each of the
parts of the plurality of persons to determine identity
of the persons,

wherein the video analysis apparatus includes the
storage section,

the storage section stores a parts DB in which each
of the parts is associated with a feature value of each
part, and

the parts DB stores, for one of the plurality of
parts, a parts type representing a type of the part, the
feature value of the part, and the score for the part in
association with a parts ID of the part,

wherein the storage section, for one person
trajectory of the person in an image captured by one of
the plurality of cameras, stores a best shot camera table
in which a person trajectory ID corresponding to the
person trajectory is associated with the parts IDs of a
plurality of parts in the person trajectory, and

wherein the storage section stores a best shot merge
table managing, for each part, the parts ID with a high

score in a case where person trajectories of the plurality of persons in images captured by the plurality of cameras indicate an identical person.

85. The person retrieval system according to claim 74, comprising:

a workstation connected to the video analysis apparatus, wherein

the workstation includes

a display section displaying a video captured by the image capturing apparatus, and

an input section receiving input information used to identify a person in the video displayed on the display section, and

the video analysis apparatus

computes feature values of a plurality of parts of the person identified by the input section of the workstation, and

retrieves the person identified by the input section on a basis of ~~a~~ the best shot merge table stored in the storage section and allowing the feature value of each of the parts to be referenced.

96. The person retrieval system according to claim 74, wherein

the video analysis apparatus identifies a region including an owner of baggage in a video from a baggage

inspection apparatus, tracks a person trajectory of the identified person, acquires a best shot of each of the parts of the tracked person trajectory, compares the feature value of the acquired best shot of each of the parts with the feature value of each part stored in a corresponding parts DB of the best shot merge table stored in the storage section, and retrieves a person identical to the owner of the baggage.

107. A person retrieval method of performing analysis using a video analysis apparatus connected to an image capturing apparatus including a plurality of cameras, wherein

the video analysis apparatus,

for a plurality of persons in images captured

~~captured by the cameras,~~

tracks at least one of the plurality of persons,

detects a plurality of parts of the tracked person,

for the plurality of parts detected, on a basis of information defining scores used to determine a best shot of each of the parts, computes a score for ~~the~~ each part for each of frames of videos from the cameras,

compares, for each of the parts, the scores for each part to determine a best shot of each of the

parts,

stores, for each of the parts, a feature value in association with each part in a storage section, and

compares ~~the~~ feature values of each of the parts of the plurality of persons to determine identity of the persons,

wherein in the video analysis apparatus, the storage section stores a parts DB in which each of the parts is associated with a feature value of each part, and

the parts DB stores, for one of the plurality of parts, a parts type representing a type of the part, the feature value of the part, and the score for the part in association with a parts ID of the part,

wherein the storage section, for one person trajectory of the person in an image captured by one of the plurality of cameras, stores a best shot camera table in which a person trajectory ID corresponding to the person trajectory is associated with the parts IDs of a plurality of parts in the person trajectory, and

wherein the storage section stores a best shot merge table managing, for each part, the parts ID with a high score in a case where person trajectories of the plurality of persons in images captured by the plurality of cameras indicate an identical person.

~~11~~8. The person retrieval method according to claim ~~10~~7, wherein

the video analysis apparatus selects, for each of the plurality of parts, items of an area, a frontal degree, a geometric feature, a luminance value, and a detection reliability, and uses an item score defined for each of the selected items to compute a score for each of the parts.

~~12~~9. The person retrieval method according to claim ~~11~~8, wherein

the video analysis apparatus, for one of the plurality of parts, causes a parts type representing a type of the part, a feature value of the part, and the score for the part to be stored in the storage section in association with a parts ID of the part.

~~13~~10. The person retrieval method according to claim ~~12~~9, wherein

the video analysis apparatus, in a case where person trajectories of a plurality of persons in images captured by the plurality of cameras indicate an identical person, selects, for each part, the parts ID with a high score, and manages a ~~the~~best shot merge table collectively including best shots of the parts of the identical person.

~~14~~11. The person retrieval method according to

claim ~~10~~7, wherein

the video analysis apparatus

displays a video captured by the image capturing apparatus, and when information used to identify the person in the displayed video is input to the video analysis apparatus, computes feature values of a plurality of parts of the identified person, and

retrieves the identified person on a basis of ~~a~~the best shot merge table stored in the storage section and allowing the feature value of each of the parts to be referenced.

~~15~~12. The person retrieval method according to claim ~~10~~7, wherein

on a basis of an alert signal and a baggage video from a baggage inspection apparatus, the video analysis apparatus identifies a region including an owner of baggage, tracks a person trajectory of the owner, acquires a best shot of each of the parts of the tracked person trajectory, compares the feature value of the acquired best shot of each of the parts with the feature value of each of the parts in the best shot stored in a corresponding parts DB of the best shot merge table stored in the storage section, and retrieves a person identical to the owner of the baggage.