CLAIMS

~~What is claimed is:~~

1. A method, comprising:

detecting and tracking a person from images from a first camera;

extracting image features from the detected and tracked person from the images from the first camera;

storing the image features with information associated with the camera into a database;

conducting a sample query to search the database for another person detected from images from a second camera;

for the another person being within a threshold of similarity of the person from the images of the first camera:

determining a gap of time between the person from the images of the first camera and the another person from the images from the second camera; and

calculating travel time for the person from the gap of time,

wherein the detecting and the tracking the person from the images from the first camera further comprises detecting and tracking one or more other persons in proximity to the person; and

wherein the extracting the image features from the detected and tracked person from the images from the first camera further comprises extracting the image features from the one or more other persons in proximity to the person to derive group features.

2. The method of claim 1, wherein the conducting the sample query to search the database for another person detected from the images from the second camera comprises:

obtaining results from the database based on feature matching with the image features associated with the sample query;

filtering the results from the database associated with persons associated with cameras having no direct route to an area associated with the second camera;

filtering the results from the database having overlapping image detection between the first camera and the second camera; and

filtering the results from the database associated with persons having a travel time that does not exceed a threshold.

3. The method of claim 1, wherein the conducting the sample query to search the database for another person detected from the images from the second camera comprises:

obtaining results from the database based on feature matching with the image features associated with the sample query; and

filtering the results from the database based on person attributes.

4. The method of claim 1, wherein the conducting the sample query to search the database for another person detected from the images from the second camera comprises evaluating the sample query, the evaluating the sample query comprising:

generating a test set from the images of the another person from the second camera along a trajectory over time;

associating the test set with a camera identifier associated with the second camera;

searching the test set with the sample query based on feature matching with the image features associated with the sample query;

for the sample query retrieving results from the test set that does not meet an accuracy threshold, discarding the sample query.

~~5. The method of claim 1,~~

~~wherein the detecting and the tracking the person from the images from the first camera further comprises detecting and tracking one or more other persons in proximity to the person;~~

~~wherein the extracting the image features from the detected and tracked person from the images from the first camera further comprises extracting the image features from the one or more other persons in proximity to the person to derive group features.~~

~~6.~~5. A non-transitory computer readable medium, storing instructions for executing a process, the instructions comprising:

detecting and tracking a person from images from a first camera;

extracting image features from the detected and tracked person from the images from the first camera;

storing the image features with information associated with the camera into a database;

conducting a sample query to search the database for another person detected from images from a second camera;

for the another person being within a threshold of similarity of the person from the images of the first camera:

determining a gap of time between the person from the images of the first camera and the another person from the images from the second camera; and

calculating travel time for the person from the gap of time,

wherein the detecting and the tracking the person from the images from the first camera further comprises detecting and tracking one or more other persons in proximity to the person; and

wherein the extracting the image features from the detected and tracked person from the images from the first camera further comprises extracting the image features from the one or more other persons in proximity to the person to derive group features.

~~7.~~6. The non-transitory computer readable medium of claim ~~6~~5, wherein the conducting the sample query to search the database for another person detected from the images from the second camera comprises:

obtaining results from the database based on feature matching with the image features associated with the sample query;

filtering the results from the database associated with persons associated with cameras having no direct route to an area associated with the second camera;

filtering the results from the database having overlapping image detection between the first camera and the second camera; and

filtering the results from the database associated with persons having a travel time that does not exceed a threshold.

~~8.~~7. The non-transitory computer readable medium of claim ~~6~~5, wherein the conducting the sample query to search the database for another person detected from the images from the second camera comprises:

obtaining results from the database based on feature matching with the image features associated with the sample query; and

filtering the results from the database based on person attributes.

~~9.~~8. The non-transitory computer readable medium of claim ~~6~~5, wherein the conducting the sample query to search the database for another person detected from the images from the second camera comprises evaluating the sample query, the evaluating the sample query comprising:

generating a test set from the images of the another person from the second camera along a trajectory over time;

associating the test set with a camera identifier associated with the second camera;

searching the test set with the sample query based on feature matching with the image features associated with the sample query;

for the sample query retrieving results from the test set that does not meet an accuracy threshold, discarding the sample query.

~~10. The non-transitory computer readable medium of claim 6,~~

~~wherein the detecting and the tracking the person from the images from the first camera further comprises detecting and tracking one or more other persons in proximity to the person;~~

~~wherein the extracting the image features from the detected and tracked person from the images from the first camera further comprises extracting the image features from the one or more other persons in proximity to the person to derive group features.~~

~~11.~~9. An apparatus, comprising:

a processor, configured to:

detect and track a person from images from a first camera;

extract image features from the detected and tracked person from the images from the first camera;

store the image features with information associated with the camera into a database;

conduct a sample query to search the database for another person detected from images from a second camera;

for the another person being within a threshold of similarity of the person from the images of the first camera:

determine a gap of time between the person from the images of the first camera and the another person from the images from the second camera; and

calculate travel time for the person from the gap of time,

wherein the processor is configured to detect and track the person from the images from the first camera by detecting and tracking one or more other persons in proximity to the person; and

wherein the processor is configured to extract the image features from the detected and tracked person from the images from the first camera further comprises extracting the image features from the one or more other persons in proximity to the person to derive group features.

~~12.~~10. The apparatus of claim ~~11~~9, wherein the processor is configured to conduct the sample query to search the database for another person detected from the images from the second camera by:

obtaining results from the database based on feature matching with the image features associated with the sample query;

filtering the results from the database associated with persons associated with cameras having no direct route to an area associated with the second camera;

filtering the results from the database having overlapping image detection between the first camera and the second camera; and

filtering the results from the database associated with persons having a travel time that does not exceed a threshold.

~~13.~~11. The apparatus of claim ~~11~~9, wherein the processor is configured to conduct the sample query to search the database for another person detected from the images from the second camera by:

obtaining results from the database based on feature matching with the image features associated with the sample query; and

filtering the results from the database based on person attributes.

~~14.~~12. The apparatus of claim ~~11~~9, wherein the processor is configured to conduct the sample query to search the database for another person detected from the images from the second camera by evaluating the sample query, the processor configured to evaluate the sample query by:

generating a test set from the images of the another person from the second camera along a trajectory over time;

associating the test set with a camera identifier associated with the second camera;

searching the test set with the sample query based on feature matching with the image features associated with the sample query;

for the sample query retrieving results from the test set that does not meet an accuracy threshold, discarding the sample query.

~~15. The apparatus of claim 11,~~

~~wherein the processor is configured to detect and track the person from the images from the first camera by detecting and tracking one or more other persons in proximity to the person;~~

~~wherein the processor is configured to extract the image features from the detected and tracked person from the images from the first camera further comprises extracting the image features from the one or more other persons in proximity to the person to derive group features.~~