

CLAIMS

1. A method for re-identifying an object, comprising:

acquiring a pre-trained re-Identification (ID) network;

acquiring a picture to be identified; and

performing re-ID on the picture to be identified through the re-ID network to obtain a re-ID result of a target object in the picture to be identified,

wherein training picture data for the re-ID network at least comprise first cluster picture data and non-cluster instance picture data, the first cluster picture data and the non-cluster instance picture data are obtained by performing clustering on a first picture dataset through an initial network corresponding to the re-ID network, and picture data in the first picture dataset exclude true cluster labels.

2. The method of claim 1, wherein the training picture data for the re-ID network further comprise a second picture dataset, and second cluster picture data in the second picture dataset comprise a true cluster label; and

a picture data domain of the second picture dataset is different from a picture data domain of the first picture dataset.

3. The method of claim 1 or 2, before acquiring the pre-trained re-ID network, further comprising:

acquiring the initial network;

acquiring the training picture data; and

training the initial network through the training picture data to obtain the re-ID network.

4. The method of claim 3, wherein acquiring the training picture data comprises:

acquiring an initial clustering result obtained by performing clustering on the first picture dataset through the initial network; and

performing re-clustering on the initial clustering result to obtain the first cluster picture data and the non-cluster instance picture data.

5. The method of claim 4, wherein the initial clustering result comprises initial cluster picture data,

performing re-clustering on the initial clustering result to obtain the first cluster picture data and the non-cluster instance picture data comprises:

reducing a picture data volume of a first present cluster in the initial cluster picture data based on a picture feature distance to obtain a second present cluster;

determining a density index of the second present cluster, the density index being a ratio of a picture data volume of the second present cluster to the picture data volume of the first present cluster;

when the density index reaches a first preset threshold, replacing the first present cluster with the second present cluster to obtain the first cluster picture data; and

classifying clipped picture data as non-cluster instance picture data.

6. The method of claim 5, wherein the initial clustering result further comprises initial non-cluster picture data,

performing re-clustering on the initial clustering result to obtain the first cluster picture data and the non-cluster instance picture data comprises:

adding picture data of another cluster and/or picture data in the initial non-cluster picture data to a third present cluster of the initial cluster picture data based on the picture feature distance to obtain a fourth present cluster, the another cluster being different from the third present cluster in the initial cluster picture data;

determining an independence index of the fourth present cluster, the independence index being a ratio of a picture data volume of the third present cluster to a picture data volume of the fourth present cluster;

when the independence index reaches the first preset threshold, replacing the third present cluster with the fourth present cluster to obtain the first cluster picture data; and

when the added picture data includes the picture data of the another cluster, canceling the another cluster, and/or, when the added picture data includes the picture data in the initial non-cluster picture data, not classifying the added picture data as non-cluster instance picture data.

7. The method of claim 3, wherein training the initial network through the training picture data to obtain the re-ID network comprises:

determining a picture data center based on the training picture data;

determining a contrastive loss based on the training picture data and the

picture data center, and performing parameter optimization on the initial network based on the contrastive loss to obtain an optimal network;

clustering the non-cluster instance picture data in the training picture data through the optimal network, and updating the first cluster picture data and the non-cluster instance picture data based on a clustering result to obtain new training picture data; and

determining a new picture data center based on the new training picture data, and repeating a step of determining a new contrastive loss based on the new training picture data and the new picture data center until training is completed, to obtain the re-ID network.

8. The method of claim 7, wherein

the picture data center comprises a first cluster center corresponding to the first cluster picture data and an instance center corresponding to the non-cluster instance picture data; or,

the picture data center comprises a first cluster center corresponding to the first cluster picture data, an instance center corresponding to the non-cluster instance picture data and a second cluster center corresponding to the second cluster picture data.

9. The method of any one of claims 1-8, wherein the re-ID network comprises a Residual Network (ResNet).

10. A device for re-identifying an object, comprising:

a network acquisition module, configured to acquire a pre-trained re-Identification (ID) network;

a picture acquisition module, configured to acquire a picture to be identified;
and

a re-ID module, configured to perform re-ID on the picture to be identified through the re-ID network to obtain a re-ID result of a target object in the picture to be identified,

wherein training picture data for the re-ID network at least comprise first cluster picture data and non-cluster instance picture data, the first cluster picture data and the non-cluster instance picture data are obtained by performing clustering on a first picture dataset through an initial network corresponding to the re-ID network, and picture data in the first picture dataset exclude true cluster labels.

11. The device of claim 10, wherein the training picture data for the re-ID network further comprise a second picture dataset, and second cluster picture data in the second picture dataset comprise a true cluster label; and

a picture data domain of the second picture dataset is different from a picture data domain of the first picture dataset.

12. The device of claim 10 or 11, further comprising:

an initial network acquisition module, configured to acquire the initial network;

a data acquisition module, configured to acquire the training picture data; and

a training module, configured to train the initial network through the training

picture data to obtain the re-ID network.

13. The device of claim 12, wherein the data acquisition module comprises:

a result acquisition unit, configured to acquire an initial clustering result obtained by performing clustering on the first picture dataset through the initial network; and

a clustering unit, configured to perform re-clustering on the initial clustering result to obtain the first cluster picture data and the non-cluster instance picture data.

14. The device of claim 13, wherein the initial clustering result comprises initial cluster picture data,

the clustering unit is configured to:

reduce a picture data volume of a first present cluster in the initial cluster picture data based on a picture feature distance to obtain a second present cluster;

determine a density index of the second present cluster, the density index being a ratio of a picture data volume of the second present cluster to the picture data volume of the first present cluster;

when the density index reaches a first preset threshold, replace the first present cluster with the second present cluster to obtain the first cluster picture data; and

classify clipped picture data as non-cluster instance picture data.

15. The device of claim 14, wherein the initial clustering result further comprises initial non-cluster picture data,

the clustering unit is further configured to:

add picture data of another cluster and/or picture data in the initial non-cluster picture data to a third present cluster of the initial cluster picture data based on the picture feature distance to obtain a fourth present cluster, the another cluster being different from the third present cluster in the initial cluster picture data;

determine an independence index of the fourth present cluster, the independence index being a ratio of a picture data volume of the third present cluster to a picture data volume of the fourth present cluster;

when the independence index reaches the first preset threshold, replace the third present cluster with the fourth present cluster to obtain the first cluster picture data; and

when the added picture data includes the picture data of the another cluster, cancel the another cluster, and/or, when the added picture data includes the picture data in the initial non-cluster picture data, not classify the added picture data as non-cluster instance picture data.

16. The device of claim 12, wherein the training module comprises:

a first determination unit, configured to determine a picture data center based on the training picture data;

an optimization unit, configured to determine a contrastive loss based on the training picture data and the picture data center and perform parameter optimization on the initial network based on the contrastive loss to obtain an optimal network;

a clustering unit, configured to cluster the non-cluster instance picture data in the training picture data through the optimal network and update the first cluster picture data and the non-cluster instance picture data based on a clustering result to

obtain new training picture data; and

a second determination unit, configured to determine a new picture data center based on the new training picture data and repeat a step of determining a new contrastive loss based on the new training picture data and the new picture data center until training is completed, to obtain the re-ID network.

17. The device of claim 16, wherein

the picture data center comprises a first cluster center corresponding to the first cluster picture data and an instance center corresponding to the non-cluster instance picture data; or,

the picture data center comprises a first cluster center corresponding to the first cluster picture data, an instance center corresponding to the non-cluster instance picture data and a second cluster center corresponding to the second cluster picture data.

18. The device of any one of claims 10-17, wherein the re-ID network comprises a Residual Network (ResNet).

19. A computer device, comprising memory, a processor and a computer program stored in the memory and capable of running in the processor, the processor executing the program to implement the steps of the method for re-identifying an object according to any one of claims 1-9.

20. A computer-readable storage medium having stored therein a

computer-executable instruction which, when executed by a processor, implements the method for re-identifying an object according to any one of claims 1-9.