CLAIMS

1. A target detection method, comprising:

obtaining a detection result by performing a target detection on a to-be-detected image, wherein the detection result comprises a target classification to which a target object involved in the to-be-detected image belongs and position information corresponding to the target object involved in the to-be-detected image;

cropping out a proposal image involving the target object from the to-be-detected image based on the position information;

determining, with a filter corresponding to the target classification, a confidence that the target object belongs to the target classification based on the proposal image, wherein the filter corresponding to the target classification is used to perform binary classification on the target object and output a probability that the target object belongs to the corresponding target classification; and

deleting, in response to that the confidence is less than a preset threshold, an information item concerned the target object from the detection result.

2. The method of claim 1, wherein obtaining the detection result by performing the target detection on the to-be-detected image comprises:

obtaining the detection result by performing the target detection on the to-be-detected image with a target detection network;

wherein the target detection network is trained to detect respective target objects of each of a plurality of classifications.

3. The method of claim 1 or 2, wherein determining, with the filter corresponding to the target classification, the confidence that the target object belongs to the target classification based on the proposal image comprises:

determining the confidence that the target object belongs to the target classification based on an image feature extracted by performing a feature extraction on the proposal image with the filter corresponding to the target classification;

wherein the filter is trained to detect a target object of the target classification.

4. The method of claim 3, wherein the filter is trained by operations comprising:

extracting an image feature by performing the feature extraction on a sample image with the filter;

determining, based on the extracted image feature, a confidence that the sample image belongs to a labeled classification of the sample image, wherein the sample image comprises:

a positive sample image involving a target object of the target classification and

a negative sample image involving an interfering object which does not belong to the target classification;

determining a network loss based on the confidence and the labeled classification of the sample image; and

adjusting a network parameter of the filter based on the network loss.

5. The method of claim 4, wherein

the sample image comprises at least two classifications of positive sample images, and

each of the at least two classifications of positive sample images correspond to a preset display status of the target object.

6. The method of claim 5, wherein

the target object comprises a chip-like object which has a marking side and another side opposite to the marking side;

the at least two classifications of positive sample images comprise:

an image involving the chip-like object with a first display status in which the marking side of the chip-like object is visible, and

an image involving the chip-like object with a second display status in which the marking side of the chip-like object is invisible.

7. The method of any of claims 3-6, further comprising:

taking, in response to that the confidence is less than the preset threshold, the proposal image as a negative sample image to train the filter.

8. The method of claim 1 or 2, wherein, in a case that one or more target objects are detected from the to-be-detected image, for each of the one or more target objects,

the detection result comprises a target classification to which the target object belongs and position information corresponding to the target object involved in the to-be-detected image; and

determining, with the filter corresponding to the target classification, the confidence that the target object belongs to the target classification based on the proposal image comprises: determining, with a filter corresponding to the target classification, the confidence that the target object belongs to the target classification based on the proposal image involving the target object.

9. The method of claim 8, wherein

the to-be-detected image comprises an image of a game table, and

the one or more target objects comprise at least one of a game prop, a game prop operating part, and a game coin.

10. The method of any of claims 1-9, further comprising:

storing, in response to that the confidence is greater than or equal to the preset threshold, the detection result.

11. A target detection apparatus, comprising:

a target detection module, configured to obtain a detection result by performing a target detection on a to-be-detected image, wherein the detection result comprises a target

classification to which a target object involved in the to-be-detected image belongs and position information corresponding to the target object involved in the to-be-detected image;

an image cropping module, configured to crop out a proposal image involving the target object from the to-be-detected image based on the position information;

a confidence determining module, configured to determine, with a filter corresponding to the target classification, a confidence that the target object belongs to the target classification based on the proposal image, wherein the filter corresponding to the target classification is used to perform binary classification on the target object and output a probability that the target object belongs to the corresponding target classification; and

a result determining module, configured to delete, in response to that the confidence is less than a preset threshold, an information item concerned the target object from the detection result.

12. The apparatus of claim 11, wherein

the target detection module is configured to obtain the detection result by performing the target detection on the to-be-detected image with a target detection network;

wherein the target detection network is trained to detect respective target objects of each of a plurality of classifications.

13. The apparatus of claim 11 or 12, wherein

the confidence determining module is configured to determine the confidence that the target object belongs to the target classification based on an image feature extracted by performing a feature extraction on the proposal image with the filter corresponding to the target classification;

wherein the filter is trained to detect a target object of the target classification.

14. The apparatus of claim 13, wherein the filter is trained by operations comprising:

extracting an image feature by performing the feature extraction on a sample image with the filter;

determining, based on the extracted image feature, a confidence that the sample image belongs to a labeled classification of the sample image, wherein the sample image comprises: a positive sample image involving a target object of the target classification and a negative sample image involving an interfering object which does not belong to the target classification;

determining a network loss based on the confidence and the labeled classification of the sample image; and

adjusting a network parameter of the filter based on the network loss.

15. The apparatus of claim 14, wherein the sample image comprises at least two classifications of positive sample images, and each of the at least two classifications of positive sample images corresponds to a preset display status of the target object the chip-like object.

16. The apparatus of claim 15, wherein the target object comprises a chip-like object which has a marking side and another side opposite to the marking side;

the at least two classifications of positive sample images comprise: an image involving the chip-like object with a first display status in which the marking side of the chip-like object is visible, and an image involving the chip-like object with a second display status in which the marking side of the chip-like object is invisible

17. The apparatus of any of claims 13-16, wherein the result determining module is configured to:

take, in response to that the confidence is less than the preset threshold, the proposal image as a negative sample image to train the filter.

18. The apparatus of claim 11 or 12, wherein, in a case that one or more target objects are detected from the to-be-detected image, for each of the one or more target objects,

the detection result comprises a target classification to which the target object belongs and position information corresponding to the target object involved in the to-be-detected image; and

the confidence determining module is configured to: determine, with a filter corresponding to the target classification, the confidence that the target object belongs to the target classification based on the proposal image involving the target object.

19. An electronic device, comprising: a memory, a processor, wherein the memory is configured to store computer-readable instructions and the processor is configured to call the instructions to implement the method according to any of claims 1-10.

20. A computer readable storage medium, having a computer program stored thereon, wherein in a case that the computer program is executed by a processor, the method according to any of claims 1-10 is implemented.