CLAIMS

1. A method for identifying a game area type, comprising:

acquiring a first game area image to be identified;

identifying the first game area image through a first branch network of a trained classification model to obtain a color classification result of a game area in the first game area image;

identifying a second game area image through a second branch network of the trained classification model to obtain a layout classification result of the game area, wherein the second game area image is a binary image obtained by performing image processing on the first game area image; and

determining a target type of the game area based on the color classification result and the layout classification result of the game area~~.~~;

wherein the second game area image is obtained by following steps:

performing grayscale processing on the first game area image to obtain a grayscale image corresponding to the first game area image; and

performing binarization processing on the grayscale image based on a grayscale value of each pixel in the grayscale image to obtain the second game area image.

~~2. The method of claim 1, wherein the second game area image is obtained by following steps:~~

~~performing grayscale processing on the first game area image to obtain a~~

~~grayscale image corresponding to the first game area image; and~~

~~performing binarization processing on the grayscale image based on a grayscale value of each pixel in the grayscale image to obtain the second game area image.~~

~~3~~2. The method of claim ~~2~~1, wherein performing grayscale processing on the first game area image to obtain the grayscale image corresponding to the first game area image comprises:

determining a weight coefficient of each color channel of each pixel in the first game area image based on identification and classification requirement of the game area; and

determining the grayscale value of the each pixel in the grayscale image based on a pixel value and a corresponding weight coefficient of the each color channel of the each pixel in the first game area image.

~~4~~3. The method of claim ~~2~~ 1 or ~~claim 3~~2, wherein performing binarization processing on the grayscale image based on the grayscale value of each pixel in the grayscale image to obtain the second game area image comprises:

determining a target pixel value of the each pixel by sequentially comparing the grayscale value of the each pixel with a specific threshold value, wherein the target pixel value is a pixel value corresponding to black or white; and

obtaining the second game area image based on target pixel values of all pixels in the grayscale image.

~~5~~4. The method of claims ~~2~~ 1 to ~~4~~3, further comprising:

determining a target area in the second game area image; and

adding a background mask to the target area in the second game area image to obtain a new second game area image.

~~6~~5. The method of any one of claims 1 to ~~5~~4, wherein the classification model is trained by following steps:

acquiring a training sample set, wherein the training sample set comprises at least two training samples, annotated types of which are not exactly the same, wherein the annotated types at least comprise color types and layout types;

performing iterative training on the classification model by utilizing the training sample set;

determining a target loss of the classification model based on the annotated type of each training sample in the training sample set in each iteration; and

obtaining a trained classification model in a case where the target loss of the classification model meets a preset convergence condition.

~~7~~6. The method of claim ~~6~~5, wherein the annotated type of each training sample comprises a first tag value corresponding to the color type and a second tag value corresponding to the layout type,

wherein determining the target loss of the classification model based on the annotated type of the each training sample in the training sample set in each iteration comprises:

determining a first loss corresponding to the first branch network based on the

first tag value and the color classification result of each training sample output through the first branch network in each iteration;

determining a second loss corresponding to the second branch network based on the second tag value and the layout classification result of each training sample output through the second branch network in each iteration; and

determining the target loss of the classification model based on the first loss and the second loss.

~~8~~7. The method of claim ~~6~~ 5 or ~~7~~6, further comprising:

performing image processing on the each training sample in the training sample set to obtain a binary image set;

wherein performing iterative training on the classification model by utilizing the training sample set comprises:

performing iterative training on the first branch network of the classification model by utilizing the training sample set; and

performing iterative training on the second branch network of the classification model by utilizing the binary image set.

~~9~~8. The method of any one of claims 1 to ~~8~~7, wherein each of the first branch network and the second branch network comprises a backbone network layer, a fully connected layer, and a softmax layer.

~~10~~9. An apparatus for identifying a game area type, comprising a first acquisition module, a first identification module, a second identification module and a first

determination module, wherein:

the first acquisition module is configured to acquire a first game area image to be identified;

the first identification module is configured to identify the first game area image through a first branch network of a trained classification model to obtain a color classification result of a game area in the first game area image;

the second identification module is configured to identify a second game area image through a second branch network of the trained classification model to obtain a layout classification result of the game area, wherein the second game area image is a binary image obtained by performing image processing on the first game area image; and

the first determination module is configured to determine a target type of the game area based on the color classification result and the layout classification result of the game area~~.~~;

wherein the second game area image is obtained by following steps:

performing grayscale processing on the first game area image to obtain a grayscale image corresponding to the first game area image; and

performing binarization processing on the grayscale image based on a grayscale value of each pixel in the grayscale image to obtain the second game area image.

~~11~~10. An electronic device, comprising a memory and a processor, wherein the memory is configured to store a computer program executable by the processor, wherein when executing the computer program stored in the memory, the processor is configured to:

acquire a first game area image to be identified;

identify the first game area image through a first branch network of a trained classification model to obtain a color classification result of a game area in the first game area image;

identify a second game area image through a second branch network of the trained classification model to obtain a layout classification result of the game area, wherein the second game area image is a binary image obtained by performing image processing on the first game area image; and

determine a target type of the game area based on the color classification result and the layout classification result of the game area~~.~~;

wherein the second game area image is obtained by following steps:

performing grayscale processing on the first game area image to obtain a grayscale image corresponding to the first game area image; and

performing binarization processing on the grayscale image based on a grayscale value of each pixel in the grayscale image to obtain the second game area image.

~~12. The electronic device of claim 11, wherein the second game area image is obtained by following steps:~~

~~performing grayscale processing on the first game area image to obtain a grayscale image corresponding to the first game area image; and~~

~~performing binarization processing on the grayscale image based on a grayscale value of each pixel in the grayscale image to obtain the second game area image.~~

~~13~~11. The electronic device of claim ~~12~~10, wherein the processor is specifically configured to:

determine a weight coefficient of each color channel of each pixel in the first game area image based on identification and classification requirement of the game area; and

determine the grayscale value of the each pixel in the grayscale image based on a pixel value and a corresponding weight coefficient of the each color channel of the each pixel in the first game area image.

~~14~~12. The electronic device of claim ~~12~~ 10 or ~~claim 13~~11, wherein the processor is specifically configured to:

determine a target pixel value of the each pixel by sequentially comparing the grayscale value of the each pixel with a specific threshold value, wherein the target pixel value is a pixel value corresponding to black or white; and

obtain the second game area image based on target pixel values of all pixels in the grayscale image.

~~15~~13. The electronic device of claims ~~12~~ 10 to ~~14~~12, wherein the processor is further configured to:

determine a target area in the second game area image; and

add a background mask to the target area in the second game area image to obtain a new second game area image.

~~16~~14. The electronic device of any one of claims ~~11~~ 10 to ~~15~~13, wherein the

classification model is trained by following steps:

acquiring a training sample set, wherein the training sample set comprises at least two training samples, annotated types of which are not exactly the same, wherein the annotated types at least comprise color types and layout types;

performing iterative training on the classification model by utilizing the training sample set;

determining a target loss of the classification model based on the annotated type of each training sample in the training sample set in each iteration; and

obtaining a trained classification model in a case where the target loss of the classification model meets a preset convergence condition.

~~17~~15. The electronic device of claim ~~16~~14, wherein the annotated type of each training sample comprises a first tag value corresponding to the color type and a second tag value corresponding to the layout type,

wherein the processor is specifically configured to:

determine a first loss corresponding to the first branch network based on the first tag value and the color classification result of each training sample output through the first branch network in each iteration;

determine a second loss corresponding to the second branch network based on the second tag value and the layout classification result of each training sample output through the second branch network in each iteration; and

determine the target loss of the classification model based on the first loss and the second loss.

~~18~~16. The electronic device of claim ~~16~~ 14 or ~~17~~15, wherein the processor is further configured to:

perform image processing on the each training sample in the training sample set to obtain a binary image set;

wherein the processor is specifically configured to:

perform iterative training on the first branch network of the classification model by utilizing the training sample set; and

perform iterative training on the second branch network of the classification model by utilizing the binary image set.

~~19~~17. The electronic device of any one of claims ~~11~~ 10 to ~~18~~16, wherein each of the first branch network and the second branch network comprises a backbone network layer, a fully connected layer, and a softmax layer.

~~20~~18. A computer-readable storage medium, wherein the computer-readable storage medium is configured to store a computer program, and the program is executed by a processor to:

acquire a first game area image to be identified;

identify the first game area image through a first branch network of a trained classification model to obtain a color classification result of a game area in the first game area image;

identify a second game area image through a second branch network of the trained classification model to obtain a layout classification result of the game area, wherein the second game area image is a binary image obtained by performing image

processing on the first game area image; and

determine a target type of the game area based on the color classification result and the layout classification result of the game area.;

wherein the second game area image is obtained by following steps:

performing grayscale processing on the first game area image to obtain a grayscale image corresponding to the first game area image; and

performing binarization processing on the grayscale image based on a grayscale value of each pixel in the grayscale image to obtain the second game area image.