CLAIMS

1. An intelligent driving control method, comprising:

obtaining a detection result of a lane line in a running environment of a vehicle;

determining, according to a running state of the vehicle and the detection result of the lane line, an estimated distance by which the vehicle drives out of the lane line;

in response to the estimated distance being greater than a first preset distance value and less than or equal to a second preset distance value, determining an estimated time for which the vehicle drives out of the lane line; and

performing intelligent driving control according to the estimated time.

2. The method according to claim 1, wherein the performing intelligent driving control according to the estimated time comprises:

comparing the estimated time with at least one predetermined threshold; and

when the comparison result satisfies one or more preset conditions, performing intelligent driving control corresponding to the satisfied preset condition, wherein the intelligent driving control comprises at least one of the followings: automatic driving control, assisted driving control, or driving mode switching control.

3. The method according to claim 2, wherein

the automatic driving control comprises any one or more of the followings: performing lane line departure warning, performing braking, changing a running speed, changing a running direction, performing lane line keeping, or changing a state of vehicle lamp;

and/or the assisted driving control comprises at least one of the followings: performing lane line departure early-warning or performing lane line keeping prompting.

4. The method according to any one of claims 1 to 3, further comprising:

in response to the estimated distance being less than or equal to the second preset distance value or less than the first preset distance value, automatically activating an intelligent driving control function; or

in response to the estimated time being less than the predetermined threshold, automatically activating the intelligent driving control function; or

in response to detecting that the vehicle drives onto the lane line, automatically activating the intelligent driving control function.

5. The method according to any one of claims 2 to 4, wherein when the one or more preset conditions comprises a plurality of preset conditions, degrees of intelligent driving control respectively corresponding to the plurality of preset conditions increase incrementally.

6. The method according to claim 5, wherein the when the comparison result satisfies one or more preset conditions, performing intelligent driving control corresponding to the satisfied preset condition comprises:

if the estimated time is less than or equal to a first preset time value and greater than a second preset time value, performing the lane line departure early-warning on the vehicle, wherein the second preset time value is less than the first preset time value.

7. The method according to claim 5 or 6, wherein the when the comparison result satisfies one or more preset conditions, performing intelligent driving control corresponding to the satisfied preset condition further comprises:

if the estimated time is less than or equal to the second preset time value, performing the automatic driving control and/or the lane line departure warning on the vehicle, wherein the lane line departure early-warning comprises the lane line departure warning.

8. The method according to any one of claims 5 to 7, further comprising: if a first distance is less than or equal to the first preset distance value, performing the automatic driving control and/or the lane line departure warning on the vehicle, wherein the lane line departure early-warning comprises the lane line departure warning.

9. The method according to claim 8, wherein the if the estimated time is less than or equal to the second preset time value, performing the automatic driving control and/or the lane line departure warning on the vehicle comprises: if both an estimated time determined based on an image and an estimated time determined based on a historical frame image are less than or equal to the second preset time value, performing the automatic driving control and/or the lane line departure warning on the vehicle; or

the if a first distance is less than or equal to the first preset distance value, performing the automatic driving control and/or the lane line departure warning on the vehicle comprises: if both an estimated distance determined based on the image and an estimated distance determined based on the historical frame image are less than or equal to the first preset distance value, performing the automatic driving control and/or the lane line departure warning on the vehicle,

wherein the historical frame image comprises at least one frame of image in a video where the image is located, of which a detection time sequence is prior to that of the image.

10. The method according to claim 3, wherein the performing lane line departure warning comprises turning on a turn signal light and/or providing a voice prompt; and/or wherein the performing lane line departure early-warning comprises at least one of flickering a light, ringing, or providing a voice prompt.

11. The method according to any one of claims 2 to 10, further comprising:

obtaining a driving level of a driver of the vehicle; and

adjusting, according to the driving level, at least one of the first preset distance value, the second preset distance value, or a preset threshold.

12. The method according to any one of claims 1 to 11, wherein the obtaining a lane line detection result of a running environment of a vehicle comprises:

performing semantic segmentation on an image comprising the running environment of the vehicle through a neural network to output a lane line probability map, wherein the lane line probability map is used for representing a probability that each of at least one pixel point in the image belongs to a lane line; and

determining, according to the lane line probability map, an area where the lane line is located, wherein the detection result of the lane line comprises the area where the lane line is located.

13. The method according to claim 12, wherein the determining, according to a running state of the vehicle and the detection result of the lane line, an estimated distance by which the vehicle drives out of a lane line comprises:

respectively performing curve fitting on pixel points in the area where each lane line is located to obtain a fitted curve of each lane line; and

determining, according to the running state of the vehicle and the fitted curve of the lane line, the estimated distance by which the vehicle drives out of the lane line.

14. The method according to claim 13, wherein the determining, according to the running state of the vehicle and the fitted curve of the lane line, the estimated distance by which the vehicle drives out of the lane line comprises:

determining, according to a position of the vehicle in a world coordinate system and the fitted curve of the lane line, an estimated distance between the vehicle and the lane line, wherein the running state of the vehicle comprises the position of the vehicle in the world coordinate system.

15. The method according to claim 13 or 14, wherein the determining an estimated time for which the vehicle drives out of the lane line comprises:

determining the estimated time by which the vehicle drives out of the lane line according to a speed of the vehicle, the position of the vehicle in the world coordinate system and the fitted curve of the lane line, wherein the running state of the vehicle comprises the speed of the vehicle and the position of the vehicle in the world coordinate system.

16. The method according to claim 15, wherein the determining, according to the speed of the vehicle, the position of the vehicle in the world coordinate system, and the fitted curve of the lane line, an estimated time for which the vehicle drives out of the lane line comprises:

obtaining an included angle between a running direction of the vehicle and the fitted curve of the lane line;

obtaining, according to the position of the vehicle in the world coordinate system, an estimated distance between the vehicle and the fitted curve of the lane line; and

determining, according to the included angle, the estimated distance, and the speed of the vehicle, the estimated time for which the vehicle drives out of the lane line.

17. An intelligent driving control apparatus, comprising:

an obtaining module configured to obtain a detection result of a lane line in a running environment of a vehicle;

a distance determining module configured to determine, according to a running state of the vehicle and the detection result of the lane line, an estimated distance by which the vehicle drives out of the lane line;

a time determining module configured to, in response to the estimated distance being greater than a first preset distance value and less than or equal to a second

preset distance value, determine an estimated time for which the vehicle drives out of the lane line; and

a controlling module configured to perform intelligent driving control according to the estimated time.

18. An electronic device, comprising:

a memory configured to store a computer program; and

a processor configured to execute the computer program stored in the memory, and implement, upon execution of the computer program, the method according to any one of claims 1 to 16.

19. A computer storage medium having stored therein computer programs, wherein the computer program, when being executed, causes to implement the method according to any one of claims 1 to 16.

20. A computer program, comprising computer instructions, wherein the computer instructions when running in a processor of a device, cause to implement the method according to any one of claims 1 to 16.