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ans. 1

Claim 1

A head mount display device comprising:

an image generation unit that generates a first image for displaying a first virtual image, and a second virtual image, as a viewpoint guiding image, for displaying a second virtual image that assists movement of viewpoints of a user to the first virtual image;

an image display unit that displays the generated first and second images, and outputs display light of the first and second images;

a projection see-through optical unit that is disposed before the eyes of the user, and includes a first portion and a second portion, the first portion projecting the display light of the first and second images on the eyes of the user, the second portion causing the user to see-through an actual scene; and

a control unit that controls the image generation unit.

Claim 4

The head mount display device according to any one of claims 1 to 3, wherein

the second virtual image is displayed near the first virtual image on a virtual image display surface for the first virtual image, and

the second virtual image is a virtual image of a viewpoint guiding object as the viewpoint guiding image, of which at least one of color, brightness, and position on the virtual image display surface changes with time.

Claim 5

The head mount display device according to claim 4, wherein

in a case where the viewpoint guiding object is one, of which position on the virtual image display surface changes,

assuming that a forward direction of the user is a first direction, a right-left direction perpendicular to the first direction and along a line segment connecting the right and left eyes of the user is a second direction, and an up-down direction perpendicular to each of the first and second directions and along a vertical line is a third direction,

the control unit causes the second virtual image to move, on the virtual image

display surface, along a part of an arc that is line-symmetrical in the second direction such that both the position of the second virtual image in the second direction and the position of the second virtual image in the third direction change.

ans. 2.

Conventionally, an energy charging/discharging system for supplying power from a storage battery of an electric automobile, and charging the storage battery of the electric automobile from a domestic commercial power supply, has been known.

In the conventional charging/discharging system, when the storage battery of the electric automobile is charged from the commercial power supply, the charging is performed by converting an AC voltage to a predetermined DC voltage, i.e., converting AC power to DC power, by use of a power conditioner, for electric automobiles, provided as a house facility. Meanwhile, when power is supplied from the storage battery of the electric automobile to a home-appliance load, a DC voltage (DC power) output from the storage battery of the electric automobile is converted to an AC voltage (AC power) by the power conditioner for electric automobiles, and the AC voltage is supplied to the home-appliance load. Patent Literature 1 discloses a charging/discharging system which is an example of such an energy charging/discharging system having a power conditioner for electric automobiles.

As for the power conditioner for electric automobiles that is used in the conventional charging/discharging system and has the function of charging a storage battery of an electric automobile, when the power conditioner is caused to execute a discharge operation of discharging a DC voltage from the storage battery of the electric automobile, firstly, a communication process is executed between the power conditioner and the electric automobile, and establishment of the communication process is given as a requirement for start of the discharge operation, for the reason described below. Therefore, unless the communication process is established, the discharge operation is not executable.

The reason why the communication process is given as the requirement for start of the discharge operation is because, if a voltage is applied to a charging/discharging terminal on the electric automobile side with the communication process being not established, the electric automobile may be in a dangerous state that may cause an electric shock or the like.

ans. 3

(A)

One of problems of the gradient descent is difficulty in selecting a learning rate. If the learning rate is selected to be low, the accuracy (errors and/or rate of correct answers) of the DNN is slow to be improved, which makes the learning process need long hours. On the other hand, if the learning rate is selected to be high, the progress of the learning in the initial stage is accelerated and therefore the time required to attain a certain degree of accuracy is reduced. In this case, however, the learning may collapse in the middle, and the accuracy may be greatly reduced (deteriorated) and may not be improved anymore.

(A')

(B)

Meanwhile, there is a case where, during the learning, the accuracy of the DNN is greatly improved in the initial stage and thereafter is gradually deteriorated. Also, in this case, the gradual deterioration of the accuracy may be avoided by reselecting a learning rate.

FIG. 6 is a diagram for explaining the problem of the gradient descent. A curve of an error E shown in FIG. 6 is similar to that in FIG. 5. In the example of FIG. 6, however, the learning rate η is set to be higher than in FIG. 5 and is constant. In FIG. 6, t indicates the time of a learning cycle, and W at each t indicates a weight at the time t. The curve of the error E in FIG. 6 has a point (weight = W_{min}) at which the error E is minimum, and a point (weight = W_{local}) at which the error E is not minimum but is minimal. A target is the weight W_{min} that minimizes the error E, and the weight W_{local} is a weight that plunges the error E into a local solution. Minimizing the error E is equivalent to optimizing the accuracy of the output of the DNN. In the DNN in which a weight W_1 of an initial value, at time t=1, is set, since a gradient $\partial E/\partial w$ is negative and an absolute value thereof is great, a weight W_2 after update significantly moves in the positive direction (rightward direction), and an error function $E(W_2)$ is also significantly reduced.

(B')