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Q1

[Claim 1]

A head-mounted display apparatus comprising:

an image generation section that generates a first image for displaying a first virtual image and that generates a second image serving as a viewpoint guidance image for displaying a second virtual image which is for supporting movement of a viewpoint of a user toward the first virtual image;

an image display section that displays the generated first and second images and that outputs display light for the first and the second images;

a perspective projection optical section that is disposed at the front of the eyes of the user, and that includes a first portion configured to project the display light for the first and the second images to the eyes of the user and includes a second portion configured to cause the user to perspective see a real view; and

a control section that controls the image generation section.

[Claim 4]

The head-mounted display apparatus according to any one of claims 1 to 3, wherein:

the second virtual image is displayed on a virtual image display surface for displaying the first virtual image so as to be close to the first virtual image; and

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

[Claim 5]

The head-mounted display apparatus according to claim 4, wherein in a case where the position on the virtual image display surface, of the viewpoint guidance object changes,

and when a direction ahead of the user is defined as a first direction, a left-right direction that is perpendicular to the first direction and that is along a line segment connecting the left and right eyes of the user is defined as a second direction, and an up-down direction that is perpendicular to the first and the second directions and that is along the vertical line is defined as a third direction,

the control section causes the second virtual image to move on the virtual image display surface along a portion of a circular arc linearly symmetrical in the second direction such that the position of the second virtual image changes both in the second direction and in the third direction.

Q2.

Hitherto known are energy charge/discharge systems that supply electric power to a home electric appliance load from a storage battery of an electric vehicle and that charge a storage battery of an electric vehicle using household commercial power supply.

Such hitherto-known charge/discharge systems charge a storage battery of an electric vehicle from commercial power supply by converting AC voltage into predetermined DC voltage by means of an electric vehicle power conditioner installed as a housing facility, that is, by converting AC power into DC power. Conversely, in a case of supplying power to a home electric appliance load from a storage battery of an electric vehicle, DC voltage (DC power) outputted from a storage battery of an electric vehicle is converted into AC voltage (AC power), by means of an electric vehicle power conditioner, to thereby be supplied to the home electric appliance load. An example of such energy charge/discharge systems having an electric vehicle power conditioner is a charge/discharge system disclosed in patent document 1.

In an electric vehicle power conditioner used in a hitherto-known charge/discharge system having a function of charging a storage battery of the electric vehicle, when discharge operation for discharging of storage battery DC voltage is to be executed on a storage battery of an electric vehicle, the following process is imposed as a requirement for start of the discharge operation because of the reason described below. That is, a communication process is initially executed between the electric vehicle power conditioner and electric vehicle communication, and then the communication process is established. Accordingly, if the communication process is not established, the discharge operation cannot be executed.

The reason why the communication process is required for start of the discharge operation is that application of voltage to a discharge terminal on the electric vehicle side while the communication process is not being established can lead to a dangerous situation such as shock hazards.

Q3.

(A)

One of problems posed by the gradient descent method is difficulty in selection of learning rate. When a smaller learning rate is selected, it is difficult to improve the accuracy (accuracy rate or error) of the DNN, and the learning process takes a long time. Meanwhile, when a greater learning rate is selected, the initial learning progresses quickly and time taken until a certain degree of accuracy is reached can be shorten. However, there is a case where the learning fails in midstream, ending up with no improvement while the accuracy decreases (deteriorates) largely.

(A')

(B)

Further, there is also a case where the accuracy of the DNN improves largely at the beginning of learning, and then the accuracy deteriorates gradually. In such a case, the gradual deterioration can be avoided by re-selecting the learning rate.

FIG. 6 illustrates a problem of the gradient descent method. The curve of error E in FIG. 6 is identical to that in FIG. 5. In the example of FIG. 6, the learning rate η is set constant and in addition, set higher than that in FIG. 5. In the diagram, t represents learning cycle time, and W represents weight at each time t. The curve of error E in FIG. 6 includes a point at which the error E is the minimum (weight W_{min}), and includes a point at which the error E is not the minimum, but a local minimum (weight W_{local}). The target is the weight W_{min} at which the error E is minimized, and the weight W_{local} is a weight for inputting an error E into a local solution. Minimization of the error E leads to maximization of the accuracy of output of the DNN. In the DNN, in the case of time t=1, weight W_1, which is an initial value, the gradient $\partial E/\partial w$ indicates a negative value and the absolute value is large, and thus weight W_2 after update shifts largely toward the positive direction (rightward) and the error function $E(W_2)$ decreases largely.

(B')