【問1】

1. A head mounted display device comprising:

      an image generation unit that generates a first image for displaying a first virtual image and a second image, serving as a viewpoint guidance image, for displaying a second virtual image for assisting a user to move the viewpoint of the user to the first virtual image;

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

      a projection/see-through optical unit disposed in front of an eye of the user and including a first portion for projecting the display light of the first image and the second image to the eye of the user, and a second portion for allowing the user to see a real view in a see-through manner; and

      a control unit that controls the image generation unit.

4. The head mounted display device according to any one of claims 1 to 3, wherein

      the second virtual image is displayed in the vicinity of the first virtual image on a virtual image display surface for the first virtual image,

      the second virtual image is a virtual image of a viewpoint guidance object serving as the viewpoint guidance image, and the viewpoint guidance object changes, with time, in at least one of hue, luminance, and position on the virtual image display surface.

5. The head mounted display device according to claim 4, wherein

      when the viewpoint guidance object is configured to change in position on the virtual image display surface, a forward direction from the user is defined as a first direction, a left/right direction, which is a direction perpendicular to the first direction and which is along a line segment connecting each eye of the user, is defined as a second direction, and a vertical direction along a vertical line, which is a direction orthogonal to each of the first direction and the second direction, is defined as a third direction,

      the control unit moves the second virtual image, on the virtual image

display surface, along a part of a circular arc which is linearly symmetrical in the second direction so that the position of the second virtual image in the second direction and the position thereof in the third direction both change.

【問 2】

There is a conventionally known energy charging and discharging system that supplies electric power from an electric vehicle storage battery to a home appliance load, or charges an electric vehicle storage battery from a household commercial power supply.

The conventional charging and discharging system charges an electric vehicle storage battery from a commercial power supply by converting an AC voltage to a predetermined DC voltage, i.e., by converting AC power to DC power with an electric vehicle power conditioner provided as household equipment. Conversely, the conventional charging and discharging system supplies electric power from an electric vehicle storage battery to a home appliance load by converting a DC voltage (DC power) output from the electric vehicle storage battery to an AC voltage (AC power) with the electric vehicle power conditioner. Such energy charging and discharging systems having an electric vehicle power conditioner include, for example, the charging and discharging system disclosed in Patent Document 1.

In the electric vehicle power conditioner used in a conventional charging and discharging system that has a function for charging an electric vehicle storage battery, when performing a discharge operation for discharging a storage battery DC voltage from the electric vehicle storage battery, communication processing is first attempted between the electric vehicle power conditioner and an electric vehicle communication, and establishment of the communication processing is imposed as an operation start requirement for the above discharge operation, for the reasons described below. Therefore, if the above communication processing is not established, it is impossible to perform the above discharge operation.

The establishment of the communication processing is imposed as the operation start requirement for the discharge operation because, if the above communication processing is not established, a voltage applied to the charging and discharging terminals of the electric vehicle may result in a danger of electric shock or the like.

【問3】
(A)

One of the problems with the gradient descent method is the difficulty in selecting the learning rate. If the learning rate is selected to be low, the accuracy (accuracy rate and error) of a DNN is not readily improved, and the learning process takes a long time. On the other hand, if the learning rate is selected to be high, progress of learning at the beginning may be faster, and the time to attain a certain degree of accuracy may be shorter; however, the learning may fail midway. That is, the accuracy may be adversely reduced (deteriorated) without any improvement.

(A')

(B)

Also, the accuracy of a DNN may improve greatly at the beginning during the learning and then gradually deteriorate. Also in such a case, reselection of the learning rate may prevent the accuracy from deteriorating gradually.

FIG. 6 is a diagram for describing the problem with the gradient descent method. The curve of the error E in FIG. 6 is the same as in FIG. 5; however, in the example in FIG. 6, the learning rate η is set higher than that in FIG. 5 and is set to be constant. In FIG. 6, t indicates the time of the learning cycle, and W at each t indicates the weight at 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 local minimum point (weight W_{local}), which is not a minimum point. The goal is the weight W_{min} that minimizes the error E, and the weight W_{local} is a weight that causes the error E to fall into a local solution. Minimizing the error E means that the accuracy of the output of the DNN is the best. When the initial weight W_1 is set for the DNN at time t_1, the gradient $\partial E / \partial w$ is negative, and the absolute value thereof is large. Therefore, the updated weight W_2 moves by a large amount in the positive direction (right direction), and the error function $E(W_2)$ also greatly decreases.

(B')