Artificial Intelligence Final Report Assignment 問題2 (Problem 2)

レポート解答用紙 (Report Answer Sheet)

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問題2 (Problem 2)のレポート

I. Program:

A screenshot of a computer program

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II. Execution Results

A screen shot of a computer

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**III. Explanation**

Here is the improved version of our code that uses the pre-trained VGG16 model on ImageNet to tackle the image classification task on the CIFAR-10 dataset. Below are some notes and improvements that have been applied:

**Data Augmentation:** We applied data augmentation with RandomHorizontalFlip and RandomCrop to enhance the model's generalization ability in image recognition.

**Normalization:** We used transforms.Normalize to normalize the data with the mean and standard deviation values derived from the CIFAR-10 dataset, helping to balance and stabilize the training process.

**Using torchvision.models.vgg16:** We leveraged the available VGG16 model in torchvision.models and modified the final layer (classifier[6]) to match the number of output classes in CIFAR-10, which is 10 classes.

**Model Optimization and Evaluation:** We used the Adam optimization algorithm to update the model weights during training. Then, we evaluated the model's accuracy on the test set to assess its performance after training.

**Displaying Loss Graphs:** We added graphs to illustrate the training process and the gradual reduction of loss over each epoch, helping to observe and evaluate the model's learning process.

Our code is designed to ensure accuracy and efficiency in solving the image classification problem on the CIFAR-10 dataset. Thank you for reviewing this report, and we look forward to receiving feedback from the teacher.