EECE7398 – Lab 1

```
indrajeetadityaroy@MacBook-Pro Lab_1 % python3 CNNclassify.py train --cifar
Files already downloaded and verified
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 Epoch     Train Loss         Train Acc %          Test Loss          Test Acc %
 0/50       1.763226           34.860000           1.343556           51.330000
10/50       0.752297           75.376000           0.722555           76.530000
20/50       0.493300           83.936000           0.468551           84.430000
30/50       0.406411           86.740000           0.433410           86.040000
40/50       0.372665           87.828000           0.427678           86.310000
49/50       0.376393           87.686000           0.426164           86.490000
Model trained on the cifar dataset with best test accuracy: 86.56% saved in file: model/cifar_trained_model.pth.
```

Figure 1: CIFAR-10 model training results

Figure 2: CIFAR-10 trained model inference test input image

```
indrajeetadityaroy@MacBook-Pro Lab_1 % python3 CNNClassify.py test horse.jpg
Files already downloaded and verified
Prediction result by model trained on CIFAR-10 dataset: horse
Prediction result by model trained on MNIST dataset: 8 - eight
```

Figure 3: CIFAR-10 trained model inference result

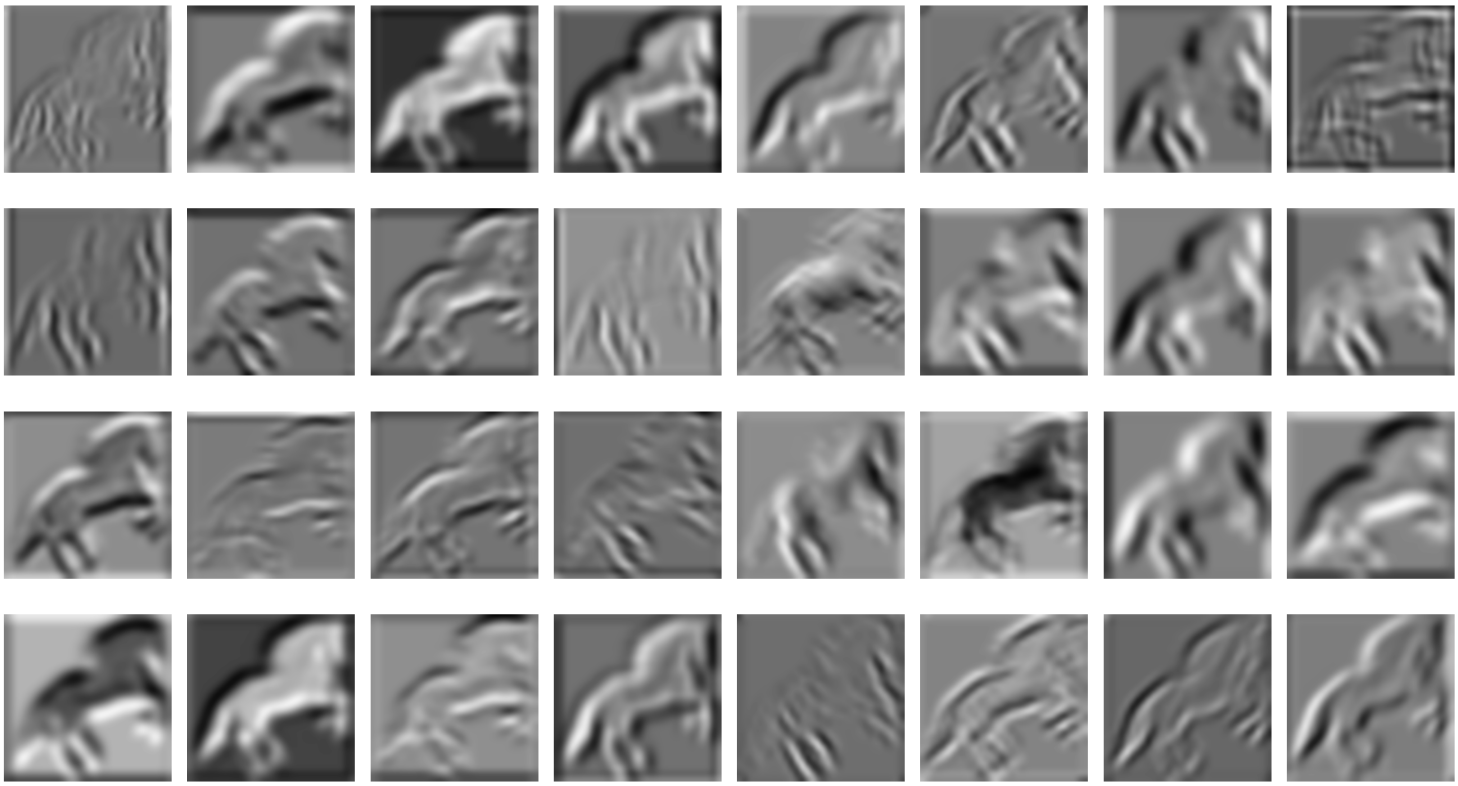

Figure 4: Visualization results from the first CONV layer for CIFAR-10 trained model

```
[indrajeetadityaroy@MacBook-Pro Lab_1 % python3 CNNclassify.py train --mnist
  Epoch     Train Loss         Train Acc %          Test Loss          Test Acc %
  0/10       0.358655           88.938333           0.063744           97.800000
  1/10       0.141923           95.728333           0.048805           98.370000
  2/10       0.120563           96.406667           0.038302           98.630000
  3/10       0.105337           96.836667           0.042519           98.500000
  4/10       0.096855           97.106667           0.033966           98.870000
  5/10       0.088201           97.325000           0.030316           98.990000
  6/10       0.086877           97.423333           0.031196           98.840000
  7/10       0.082200           97.626667           0.042861           98.630000
  8/10       0.076078           97.733333           0.029664           99.050000
  9/10       0.070421           97.878333           0.030281           98.960000
 Model trained on the mnist dataset with best test accuracy: 99.05% saved in file: model/mnist_trained_model.pth.
```

Figure 5: MNIST model training results

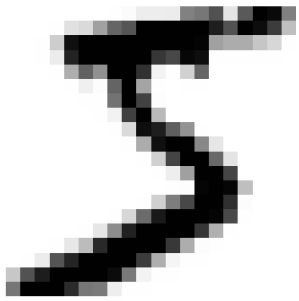

Figure 6: MNIST trained model inference test input image

```
indrajeetadityaroy@MacBook-Pro Lab_1 % python3 CNNClassify.py test 5.png
Files already downloaded and verified
Prediction result by model trained on CIFAR-10 dataset: airplane
Prediction result by model trained on MNIST dataset: 5 - five
```

Figure 7: MNIST trained model inference result

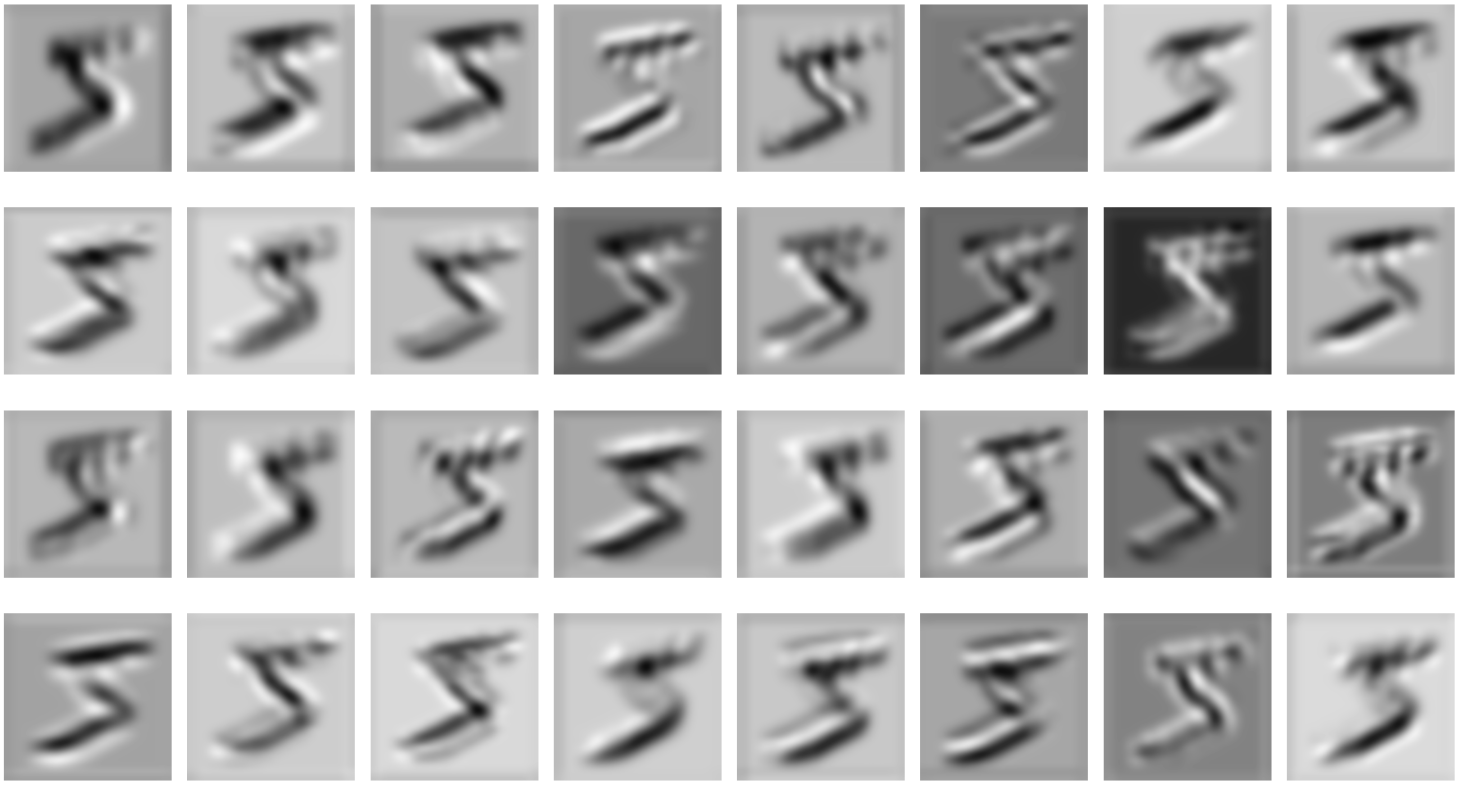

Figure 8: Visualization results from the first CONV layer for MNIST trained model