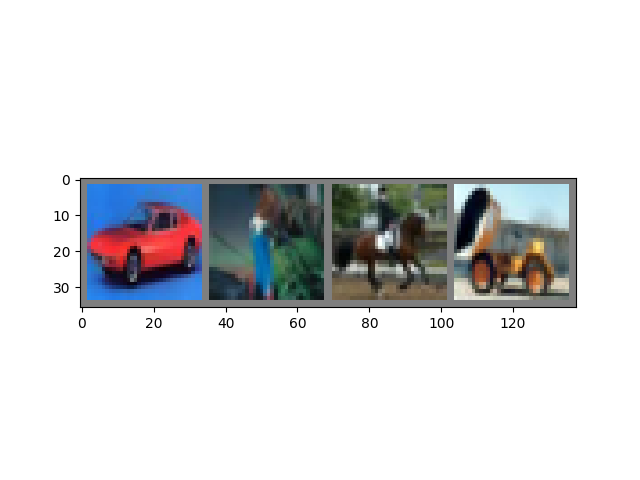
**Assignment 4**

# **Ofir Gilad & Max Brener**

**2 Tasks:**

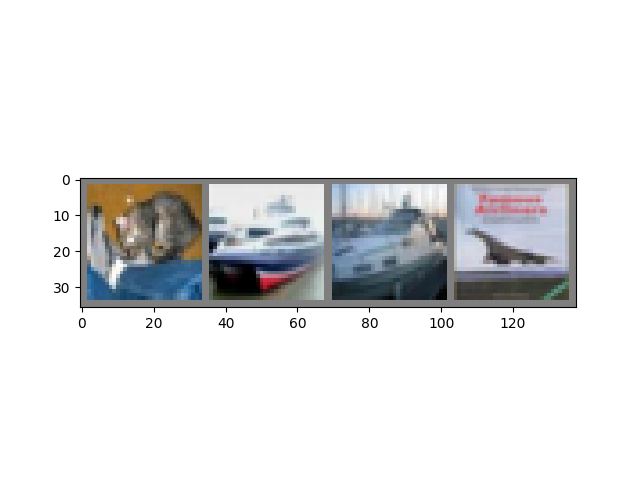
**1. CIFAR-10 classification:**

The CIFAR-10 dataset contains 60,000 32x32 color images in 10 classes, with 6,000 images per class. The CNN architecture consists of two convolutional layers, followed by a max pooling layer. Two fully connected layers then map the extracted features to the 10 output classes. The training process involved iterating over the training dataset in batches, performing forward and backward passes to calculate the loss and update the model's parameters accordingly. After training, the model was evaluated on the test set to measure its performance. The overall accuracy and per-class accuracy were calculated.



car bird horse truck

[1, 2000] loss: 2.215  
[1, 4000] loss: 1.924  
[1, 6000] loss: 1.725  
[1, 8000] loss: 1.616  
[1, 10000] loss: 1.546  
[1, 12000] loss: 1.471  
[2, 2000] loss: 1.400  
[2, 4000] loss: 1.378  
[2, 6000] loss: 1.355  
[2, 8000] loss: 1.345  
[2, 10000] loss: 1.311  
[2, 12000] loss: 1.264  
Finished Training



GroundTruth: cat ship ship plane

Predicted: cat ship ship plane

Accuracy of the network on the 10000 test images: 54.3 %

Accuracy for class: plane is 67.9 %  
Accuracy for class: car is 57.2 %  
Accuracy for class: bird is 47.1 %  
Accuracy for class: cat is 12.2 %  
Accuracy for class: deer is 51.1 %  
Accuracy for class: dog is 63.3 %  
Accuracy for class: frog is 51.4 %  
Accuracy for class: horse is 65.4 %  
Accuracy for class: ship is 64.0 %  
Accuracy for class: truck is 63.4 %

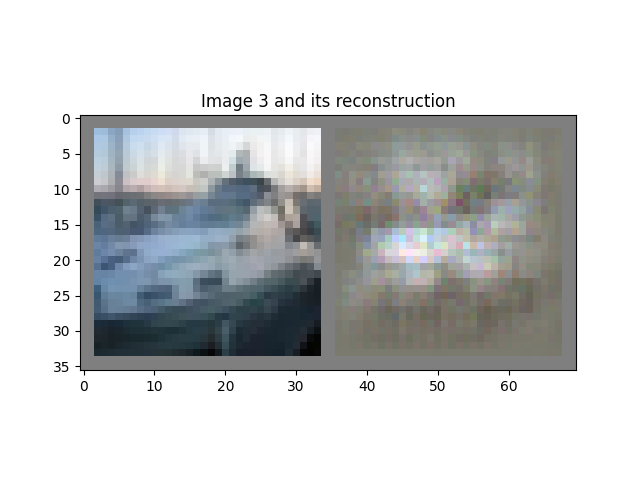
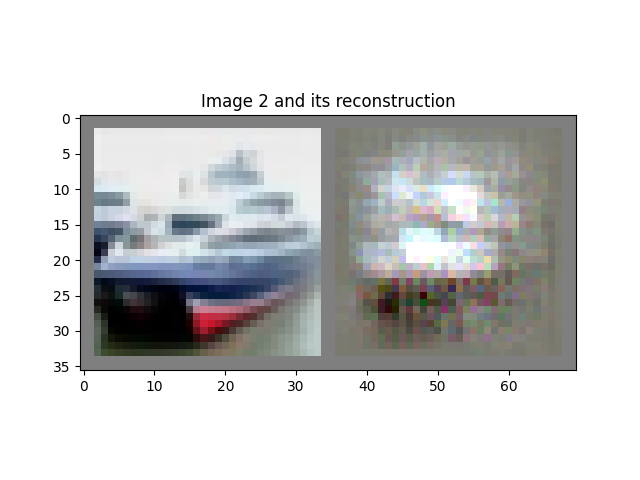
**2. Deconvolutional Model:**

Accuracy of the network on the 10000 test images: 52.66 %

**3 Example:**

A collage of images of a person's face

Description automatically generated



**3. Latent Representations Analysis:**

A train image with text overlay

Description automatically generated A graph of a train layer

Description automatically generated A graph of a train

Description automatically generated A close-up of a person's face

Description automatically generated A test image of a test layer

Description automatically generated A test image of a test

Description automatically generated with medium confidence