Project 1: Image Classification

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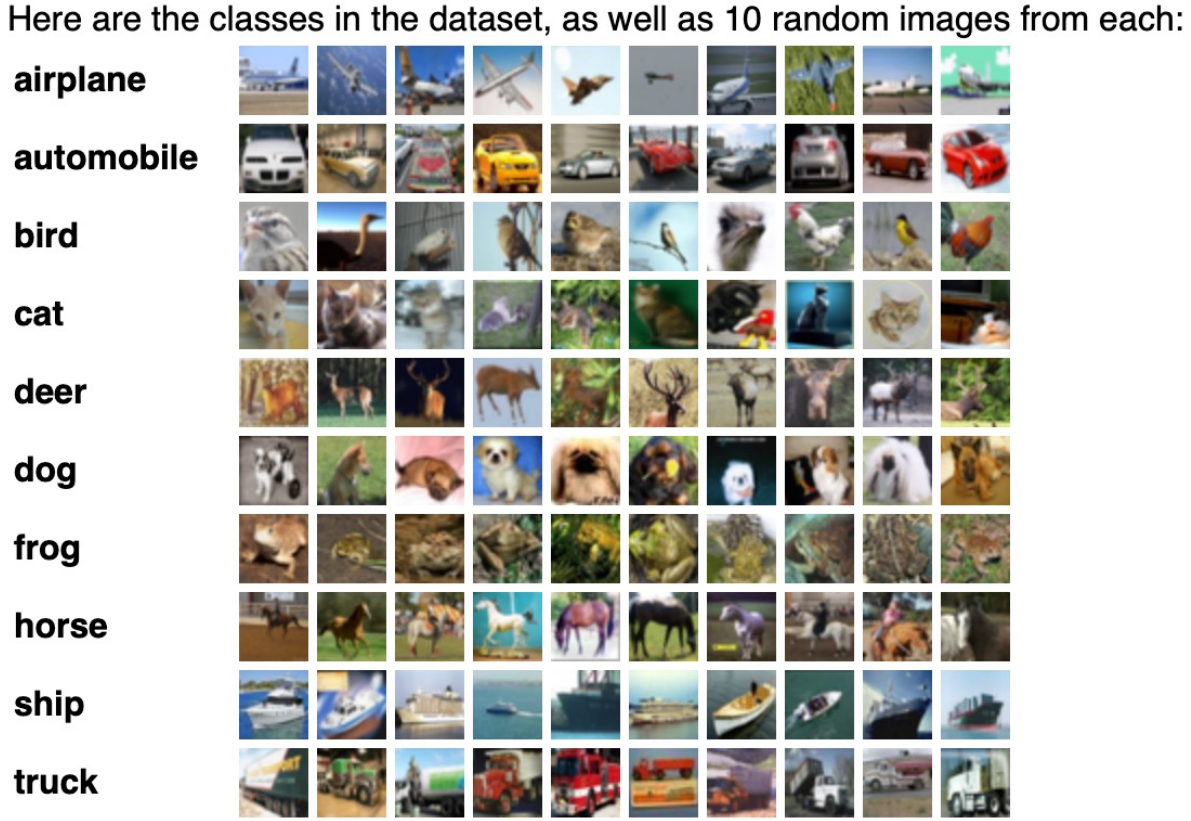
Overview

- Hello World for Deep learning!
- Designing and training a network that performs image classification
- The dataset we will be using is CIFAR10
- Hands on the traditional pipeline of training a neural network:
  - (Data Loader): Applying the necessary transformations / data augmentations
  - (Modeling): Creating a neural network
  - (Training/ Evaluation)

CIFAR-10 dataset / Data Loader

- The CIFAR-10 dataset consists of 60000 32x32 color images in 10 classes, with 6000 images per class. There are 50000 training images and 10000 test images

- Apply the necessary transformations and suitable data augmentation



Modeling

- Create a network with only fully connected layers
- Create a network with convolutional neural networks and fully connected layers
- Create a ResNet-like network
- Design choices need to be made like:
  - Choosing suitable activation function
  - Using dropout or not
  - Choosing a suitable optimizer and learning rate
  - Choosing kernel size, etc.

Training/Evaluation

- The training and evaluation methods are already implemented
- Use the cross-entropy loss function