

Computer Vision

Exercises of Lab 9

Exercise 9: Apply CNN-based image classification

The goal of this exercise is to get some experience with image classification using Convolutional Neural Networks. For this reason, we will experiment with existing models implemented in [MatConvNet](#) library.

Installation:

Download and install the library using the following:

```
untar('http://www.vlfeat.org/matconvnet/download/matconvnet-1.0-beta24.tar.gz');
```

```
cd matconvnet-1.0-beta24
```

```
run matlab/vl_compilenn;
```

Make sure that you use a C++ compiler that is compatible with both the Matlab version of your laptop and MatConvNet (the codes have been tested with Matlab R2017b and Visual Studio Enterprise 2017).

Demos of image classification:

After installing the library, a directory 'matconvnet- 1.0-beta24' is created in the current path. The subdirectory 'examples' contains two demo experiments:

- cifar
- minst

Choose one of the above and run the corresponding function. This will automatically download the datasets in the requested format and train a new CNN model.

Demo of object detection:

Open the fast_rcnn directory and run the function fast_rcnn_demo.m. Put a breakpoint in line 111 in order to observe the image, the detected bounding boxes and the corresponding class probabilities.