# Caffe Cheat Sheet

by Dhruv Bajaj (Dhruv Bajaj) via cheatography.com/137358/cs/28821/

## GPU Mode

caffe.set_mode_gpu()

## CPU Mode

caffe.set_mode_cpu()

## Net

The main class that the pycaffe interface exposes is the Net. It has two constructors:

Create a Net (in this case using the Data Layer specified for training)

net = caffe.Net('/path/prototxt/descriptor/file', caffe.TRAIN)

Creates a Net and automatically loads the weights as saved in the provided caffemodel file - in this case using the Data Layer specified for testing.

net = caffe.Net('/path/prototxt/descriptor/file', '/path/caffemodel/weights/file', caffe.TEST)

## Net.blobs

data = net.blobs['data'].data

net.blobs['data'].data[...] = my_image

fc_activations = net.blobs['fc'].data

## Parameters

nice_edge_detectors = net.params['conv'].data

higher_level_filter = net.params['fc'].data

## Solver iteration

A forward/backward pass with weight update

solver.step(1)

Run the solver until the last iteration

solver.solve()

## backward()

Computing gradients

net.backward(start='conv1', end='fc')

softmax_probabilities = net.blobs['prob'].data

## forward()

Add Data to the net

net.forward(start='conv', end='fc')

softmax_probabilities = net.blobs['prob'].data

## Transformer

transformer = caffe.io.Transformer({'data': (1, image.shape[2], image.shape[0], image.shape[1])})

## Solver

Solver needed in order to train a caffe mode

solver = caffe.SGDSolver('/path/to/solver/prototxt/file')

The networks are accessible with

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training_net = solver.net test_net = solver.test_nets[0] # more than one test net is supported

## PoolMethod

caffe.params.Pooling

## Data augmentation

tools.data_augmentation

## Monitoring

tools.solvers.MonitoringSolver

## Transformation

tools.prototxt.train2deploy

## LMDB I/O

import tools.lmdb_io

## Pre-processing

import tools.pre_processing

## Prediction

pred = net.predict([input])

## Image Input

input_image = caffe.io.load_image(IMAGE_FILE)

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