

Pooling

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In [1]: import keras
import numpy as np
import matplotlib.pyplot as plt
import matplotlib.cm as cm
import matplotlib.image as mpimg
import tensorflow as tf
import seaborn
config = tf.ConfigProto(
    device_count = {'GPU': 0}
)
sess = tf.Session(config=config)
%matplotlib inline
```

Using TensorFlow backend.

1 Helper Functions

```
In [2]: #np.cov not working as expected?
def cov(matrix):
    f = np.ones(matrix.shape[1])
    a = np.ones(matrix.shape[1])

    m = matrix.copy()
    w = f * a
    v1 = np.sum(w)
    v2 = np.sum(a)
    m -= np.sum(m * w, axis=1, keepdims=True) / v1
    _cov = np.dot(m * w, m.T) * v1 / (v1**2)
    return _cov

def prepare_covariance_matrix(matrix):
    covariance = cov(matrix)
    np.fill_diagonal(covariance, 0)
    return covariance

def create_adjacency_matrix_from_covariance(matrix, k=4, symmetric = True):
```