

show_results

October 3, 2016

1 Load model

1.1 Model

```
conv1_1 = new_conv_layer( image, [3, 3, 1, 16], "conv1_1" )
conv1_2 = new_conv_layer( conv1_1, [3, 3, 16, 16], "conv1_2" )
pool1 = tf.nn.max_pool(conv1_2, ksize=[1, 2, 2, 1], strides=[1, 2, 2, 1], padding='SAME',
name='pool1')
conv2_1 = new_conv_layer(pool1, [3, 3, 16, 16], "conv2_1")
conv2_2 = new_conv_layer(conv2_1, [3, 3, 16, 16], "conv2_2")
pool2 = tf.nn.max_pool(conv2_2, ksize=[1, 2, 2, 1], strides=[1, 2, 2, 1], padding='SAME',
name='pool2')
conv3_1 = new_conv_layer(pool2, [3, 3, 16, 16], "conv3_1")
conv3_2 = new_conv_layer(conv3_1, [3, 3, 16, n_labels], "conv3_2")
gap = tf.reduce_mean( conv3_2, [1,2] )
```

1.2 train params

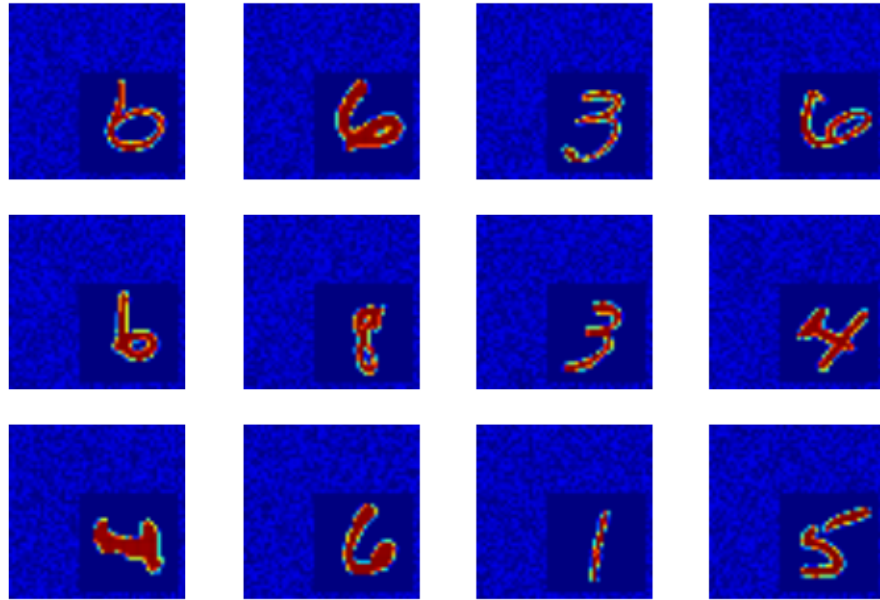
L2 on weights (5e-5)

```
In [2]: import matplotlib.pyplot as plt
import numpy as np
import simple_model
from simple_model import training_generator
import utils

lr=.005
back_size=50
crop_pos=(20,20)

In [3]: """Plot training samples"""
batch = utils.get_batch('train', 3*4, back_size, .1, crop_pos).next()

fig, axs = plt.subplots(3,4)
for ax,img in zip([b for a in axs for b in a],batch[0]):
    ax.imshow(img.reshape(back_size,back_size), vmin=0, vmax=1)
    ax.set_axis_off()
plt.show()
```



```
In [4]: """Perform training"""
        gen = training_generator(lr=.005, back_size=50, crop_pos=(20,20) )
        for _ in range(5):
            _, accs = gen.next()
            print "max acc so far : "+str(max(accs)*100)
```

```
***** EPOCH 0 *****
Loss on testset is 2.389951
Accuracy now is 38.49
lr now is 0.00475
max acc so far : 38.49
```

```
***** EPOCH 1 *****
Loss on testset is 0.558022
Accuracy now is 89.83
lr now is 0.00451
max acc so far : 89.83
```

```
***** EPOCH 2 *****
Loss on testset is 0.688487
Accuracy now is 88.21
lr now is 0.00429
max acc so far : 89.83
```

```

***** EPOCH 3 *****
Loss on testset is 1.177630
Accuracy now is 81.16
lr now is 0.00407
max acc so far : 89.83

```

```

***** EPOCH 4 *****
Loss on testset is 1.262693
Accuracy now is 84.90
lr now is 0.00387
max acc so far : 89.83

```

```
In [5]: back_size = 100
```

```

for _ in range(5):
    print '-----'*5
    imgs, lbls = utils.get_batch('test', 1, back_size, .1).next()

    vis, out = simple_model.samples_propagation(imgs)
    vis = np.array(vis)
    s = vis.shape
    vis = vis.reshape(-1,s[1],s[2],10)

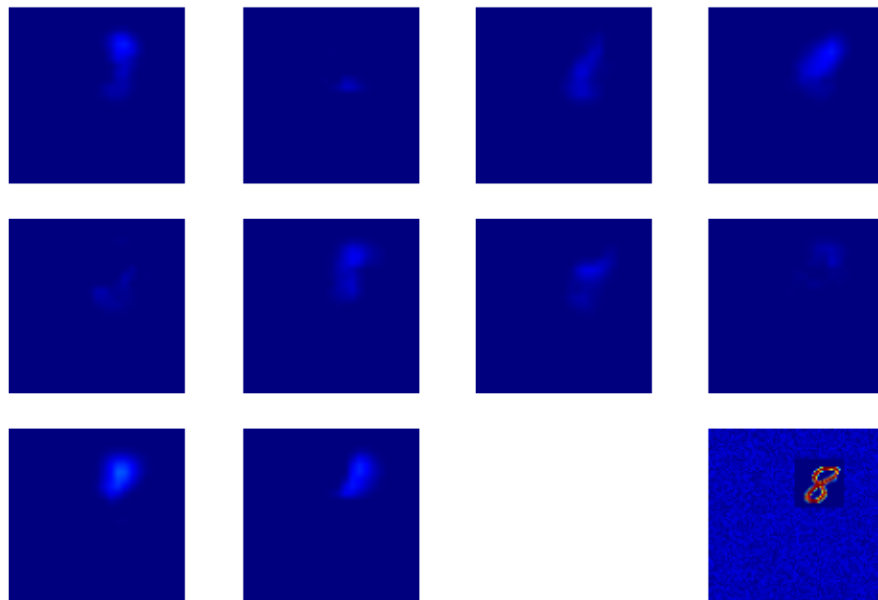
    simple_model.print_stats(vis[0])
    utils.plot_classes_maps(vis[0], imgs[0])

```

```

-----
min: 0.0 - mean: 3.5 - max: 152.1
min: 0.0 - mean: 1.2 - max: 59.8
min: 0.0 - mean: 2.6 - max: 79.1
min: 0.0 - mean: 4.6 - max: 145.9
min: 0.0 - mean: 1.2 - max: 45.3
min: 0.0 - mean: 3.1 - max: 103.7
min: 0.0 - mean: 2.2 - max: 97.3
min: 0.0 - mean: 1.1 - max: 59.7
min: 0.0 - mean: 5.9 - max: 220.4
min: 0.0 - mean: 4.1 - max: 160.6
predicted 8

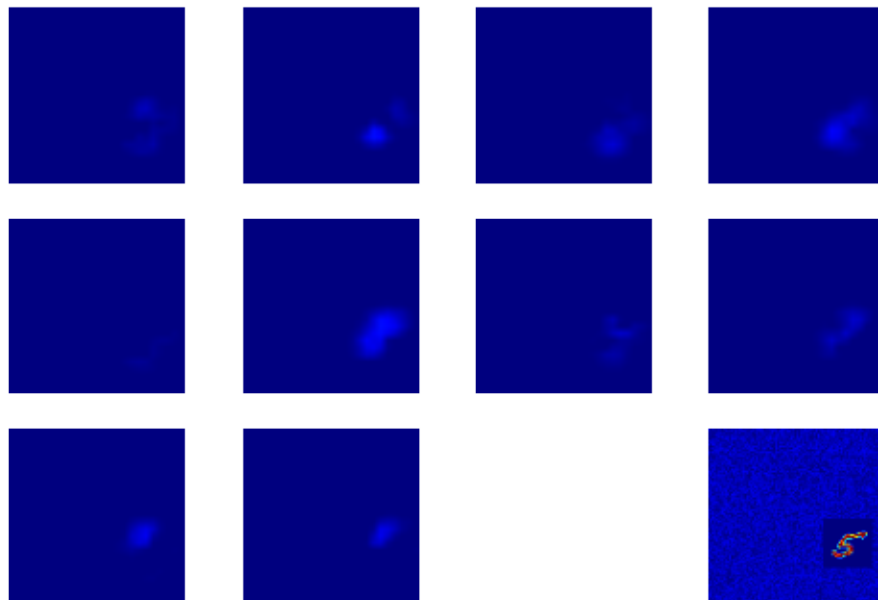
```



```

min:    0.0 - mean:    1.4 - max:   56.2
min:    0.0 - mean:    2.6 - max:  138.2
min:    0.0 - mean:    2.1 - max:   74.3
min:    0.0 - mean:    3.4 - max:  111.0
min:    0.0 - mean:    0.6 - max:   23.4
min:    0.0 - mean:    4.6 - max:  140.3
min:    0.0 - mean:    1.2 - max:   66.7
min:    0.0 - mean:    1.7 - max:   69.8
min:    0.0 - mean:    1.9 - max:  103.9
min:    0.0 - mean:    1.5 - max:   98.1
predicted 5

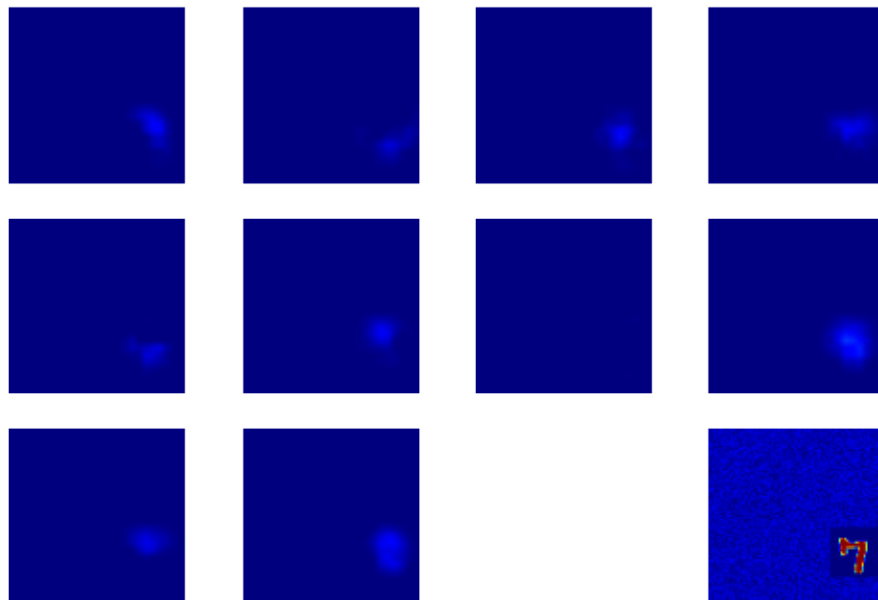
```



```

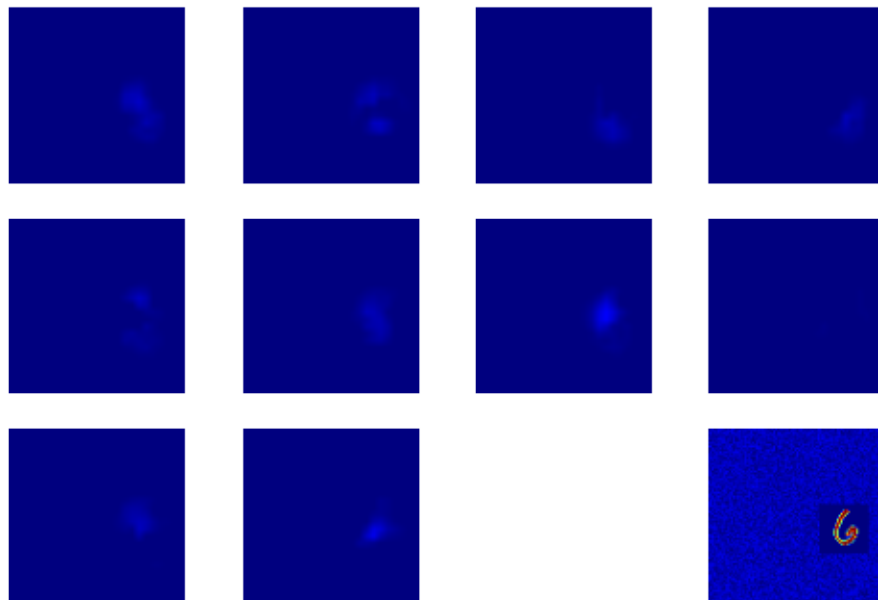
min:    0.0 - mean:    2.2 - max: 113.9
min:    0.0 - mean:    2.1 - max:  80.4
min:    0.0 - mean:    2.4 - max: 136.5
min:    0.0 - mean:    2.8 - max: 108.1
min:    0.0 - mean:    1.6 - max:  85.2
min:    0.0 - mean:    2.0 - max: 112.8
min:    0.0 - mean:    0.1 - max:   7.9
min:    0.0 - mean:    5.1 - max: 180.9
min:    0.0 - mean:    2.0 - max:  97.7
min:    0.0 - mean:    3.5 - max: 119.1
predicted 7

```



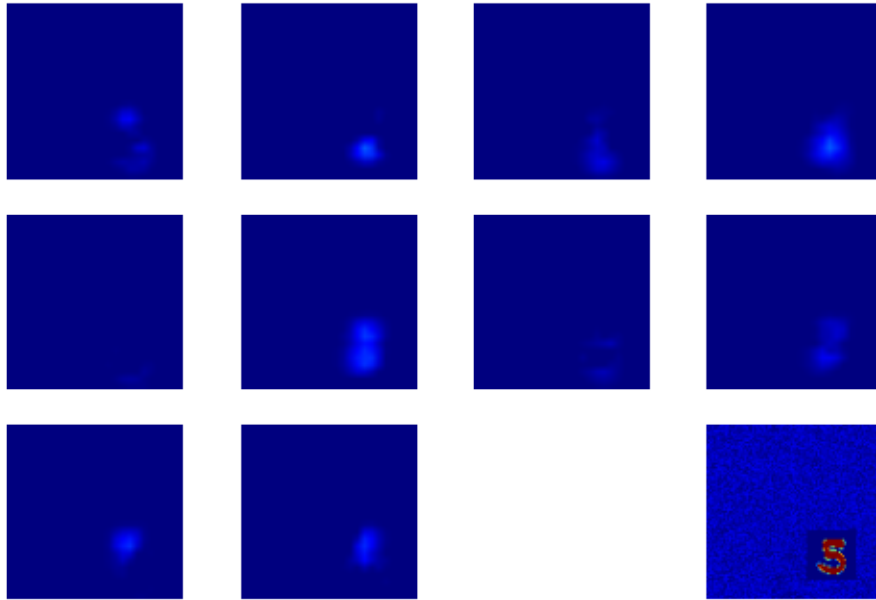
min:	0.0	- mean:	1.8	- max:	64.4
min:	0.0	- mean:	2.2	- max:	62.3
min:	0.0	- mean:	1.3	- max:	48.9
min:	0.0	- mean:	1.2	- max:	52.5
min:	0.0	- mean:	1.4	- max:	61.0
min:	0.0	- mean:	1.6	- max:	50.9
min:	0.0	- mean:	2.3	- max:	120.1
min:	0.0	- mean:	0.2	- max:	9.7
min:	0.0	- mean:	1.3	- max:	55.6
min:	0.0	- mean:	1.4	- max:	98.3

predicted 6



min:	0.0	- mean:	2.2	- max:	109.2
min:	0.0	- mean:	3.5	- max:	215.7
min:	0.0	- mean:	2.4	- max:	92.6
min:	0.0	- mean:	5.7	- max:	215.1
min:	0.0	- mean:	0.6	- max:	29.4
min:	0.0	- mean:	6.7	- max:	180.2
min:	0.0	- mean:	1.0	- max:	51.3
min:	0.0	- mean:	2.9	- max:	100.5
min:	0.0	- mean:	2.9	- max:	169.8
min:	0.0	- mean:	3.1	- max:	165.0

predicted 5



In []:

In []: