

Experiments

January 29, 2022

```
[1]: from nerf2d import GenerateModel
from experiments import ActivationRegions
from IPython.display import Image

[2]: images_to_test = ['cool_cows', 'fractal', 'glasses', 'robot', 'salad']
encodings_to_test = ['sin_cos', 'repeat_xy']
epochs_to_save = [0, 1, 2, 3, 10, 20, 30, 100, 200, 300, 700, 800, 900, 1000]
```

```
[7]: # Train and save the models.
for image in images_to_test:
    for encoding in encodings_to_test:
        GenerateModel(encoding, image, save_epochs=epochs_to_save)
```

Model: "sequential"

Layer (type)	Output Shape	Param #
dense (Dense)	(None, 128)	5248
dense_1 (Dense)	(None, 128)	16512
dense_2 (Dense)	(None, 3)	387

Total params: 22,147

Trainable params: 22,147

Non-trainable params: 0

```
epoch 100 | loss 0.1283278465270996 | error 0.1283278465270996
epoch 200 | loss 0.08599826693534851 | error 0.08599826693534851
epoch 300 | loss 0.06560484319925308 | error 0.06560484319925308
epoch 400 | loss 0.05308996140956879 | error 0.05308996140956879
epoch 500 | loss 0.045352574437856674 | error 0.045352574437856674
epoch 600 | loss 0.039855554699897766 | error 0.039855554699897766
epoch 700 | loss 0.03588555240046978 | error 0.03588555240046978
epoch 800 | loss 0.032912299036979675 | error 0.032912299036979675
epoch 900 | loss 0.030499517917633057 | error 0.030499517917633057
epoch 1000 | loss 0.02847908064723015 | error 0.02847908064723015
Saved final model to saved_model/128x2_sin_cos_5e-04_cool_cows
```

Model: "sequential_1"

Layer (type)	Output Shape	Param #
<hr/>		
dense_3 (Dense)	(None, 128)	5248
<hr/>		
dense_4 (Dense)	(None, 128)	16512
<hr/>		
dense_5 (Dense)	(None, 3)	387
<hr/>		

Total params: 22,147
Trainable params: 22,147
Non-trainable params: 0

epoch 100 | loss 0.16651013493537903 | error 0.16651013493537903
epoch 200 | loss 0.1463354378938675 | error 0.1463354378938675
epoch 300 | loss 0.13321855664253235 | error 0.13321855664253235
epoch 400 | loss 0.12447074055671692 | error 0.12447074055671692
epoch 500 | loss 0.11673730611801147 | error 0.11673730611801147
epoch 600 | loss 0.10810333490371704 | error 0.10810333490371704
epoch 700 | loss 0.09843945503234863 | error 0.09843945503234863
epoch 800 | loss 0.08961980789899826 | error 0.08961980789899826
epoch 900 | loss 0.083401158452034 | error 0.083401158452034
epoch 1000 | loss 0.07997918128967285 | error 0.07997918128967285
Saved final model to saved_model/128x2_repeat_xy_5e-04_cool_cows
Model: "sequential_2"

Layer (type)	Output Shape	Param #
<hr/>		
dense_6 (Dense)	(None, 128)	5248
<hr/>		
dense_7 (Dense)	(None, 128)	16512
<hr/>		
dense_8 (Dense)	(None, 3)	387
<hr/>		

Total params: 22,147
Trainable params: 22,147
Non-trainable params: 0

epoch 100 | loss 0.16672900319099426 | error 0.16672900319099426
epoch 200 | loss 0.10217149555683136 | error 0.10217149555683136
epoch 300 | loss 0.08137354999780655 | error 0.08137354999780655
epoch 400 | loss 0.06926320493221283 | error 0.06926320493221283
epoch 500 | loss 0.061613090336322784 | error 0.061613090336322784
epoch 600 | loss 0.055853262543678284 | error 0.055853262543678284
epoch 700 | loss 0.051311999559402466 | error 0.051311999559402466
epoch 800 | loss 0.047491878271102905 | error 0.047491878271102905
epoch 900 | loss 0.0442812405526638 | error 0.0442812405526638

```
epoch 1000 | loss 0.041528988629579544 | error 0.041528988629579544
Saved final model to saved_model/128x2_sin_cos_5e-04_fractal
Model: "sequential_3"
```

Layer (type)	Output Shape	Param #
dense_9 (Dense)	(None, 128)	5248
dense_10 (Dense)	(None, 128)	16512
dense_11 (Dense)	(None, 3)	387

```
Total params: 22,147
Trainable params: 22,147
Non-trainable params: 0
```

```
epoch 100 | loss 0.14208832383155823 | error 0.14208832383155823
epoch 200 | loss 0.12219744920730591 | error 0.12219744920730591
epoch 300 | loss 0.1113329753279686 | error 0.1113329753279686
epoch 400 | loss 0.10340515524148941 | error 0.10340515524148941
epoch 500 | loss 0.09735459834337234 | error 0.09735459834337234
epoch 600 | loss 0.09307987987995148 | error 0.09307987987995148
epoch 700 | loss 0.09011756628751755 | error 0.09011756628751755
epoch 800 | loss 0.08754275739192963 | error 0.08754275739192963
epoch 900 | loss 0.08506444096565247 | error 0.08506444096565247
epoch 1000 | loss 0.08279653638601303 | error 0.08279653638601303
Saved final model to saved_model/128x2_repeat_xy_5e-04_fractal
Model: "sequential_4"
```

Layer (type)	Output Shape	Param #
dense_12 (Dense)	(None, 128)	5248
dense_13 (Dense)	(None, 128)	16512
dense_14 (Dense)	(None, 3)	387

```
Total params: 22,147
Trainable params: 22,147
Non-trainable params: 0
```

```
epoch 100 | loss 0.10553508996963501 | error 0.10553508996963501
epoch 200 | loss 0.0726500004529953 | error 0.0726500004529953
epoch 300 | loss 0.052708230912685394 | error 0.052708230912685394
epoch 400 | loss 0.04010556638240814 | error 0.04010556638240814
epoch 500 | loss 0.032529041171073914 | error 0.032529041171073914
epoch 600 | loss 0.02773382142186165 | error 0.02773382142186165
epoch 700 | loss 0.02439839392900467 | error 0.02439839392900467
```

```
epoch 800 | loss 0.022038407623767853 | error 0.022038407623767853
epoch 900 | loss 0.02034977823495865 | error 0.02034977823495865
epoch 1000 | loss 0.018997397273778915 | error 0.018997397273778915
Saved final model to saved_model/128x2_sin_cos_5e-04_glasses
Model: "sequential_5"
```

Layer (type)	Output Shape	Param #
<hr/>		
dense_15 (Dense)	(None, 128)	5248
<hr/>		
dense_16 (Dense)	(None, 128)	16512
<hr/>		
dense_17 (Dense)	(None, 3)	387
<hr/>		

```
Total params: 22,147
Trainable params: 22,147
Non-trainable params: 0
```

```
epoch 100 | loss 0.16305102407932281 | error 0.16305102407932281
epoch 200 | loss 0.1100856363773346 | error 0.1100856363773346
epoch 300 | loss 0.09868859499692917 | error 0.09868859499692917
epoch 400 | loss 0.0918322280049324 | error 0.0918322280049324
epoch 500 | loss 0.08707424998283386 | error 0.08707424998283386
epoch 600 | loss 0.08424496650695801 | error 0.08424496650695801
epoch 700 | loss 0.08201301842927933 | error 0.08201301842927933
epoch 800 | loss 0.0800422877073288 | error 0.0800422877073288
epoch 900 | loss 0.07846933603286743 | error 0.07846933603286743
epoch 1000 | loss 0.07715370506048203 | error 0.07715370506048203
Saved final model to saved_model/128x2_repeat_xy_5e-04_glasses
Model: "sequential_6"
```

Layer (type)	Output Shape	Param #
<hr/>		
dense_18 (Dense)	(None, 128)	5248
<hr/>		
dense_19 (Dense)	(None, 128)	16512
<hr/>		
dense_20 (Dense)	(None, 3)	387
<hr/>		

```
Total params: 22,147
Trainable params: 22,147
Non-trainable params: 0
```

```
epoch 100 | loss 0.16492050886154175 | error 0.16492050886154175
epoch 200 | loss 0.13923949003219604 | error 0.13923949003219604
epoch 300 | loss 0.12375500053167343 | error 0.12375500053167343
epoch 400 | loss 0.11156515032052994 | error 0.11156515032052994
epoch 500 | loss 0.09860163182020187 | error 0.09860163182020187
```

```
epoch 600 | loss 0.08653910458087921 | error 0.08653910458087921
epoch 700 | loss 0.07705958932638168 | error 0.07705958932638168
epoch 800 | loss 0.06922847032546997 | error 0.06922847032546997
epoch 900 | loss 0.0627916008234024 | error 0.0627916008234024
epoch 1000 | loss 0.05737804248929024 | error 0.05737804248929024
Saved final model to saved_model/128x2_sin_cos_5e-04_robot
Model: "sequential_7"
```

Layer (type)	Output Shape	Param #
dense_21 (Dense)	(None, 128)	5248
dense_22 (Dense)	(None, 128)	16512
dense_23 (Dense)	(None, 3)	387

```
Total params: 22,147
Trainable params: 22,147
Non-trainable params: 0
```

```
epoch 100 | loss 0.16546377539634705 | error 0.16546377539634705
epoch 200 | loss 0.16124917566776276 | error 0.16124917566776276
epoch 300 | loss 0.15810655057430267 | error 0.15810655057430267
epoch 400 | loss 0.15658646821975708 | error 0.15658646821975708
epoch 500 | loss 0.15545377135276794 | error 0.15545377135276794
epoch 600 | loss 0.154043048620224 | error 0.154043048620224
epoch 700 | loss 0.1528739035129547 | error 0.1528739035129547
epoch 800 | loss 0.1517612487077713 | error 0.1517612487077713
epoch 900 | loss 0.1506386548280716 | error 0.1506386548280716
epoch 1000 | loss 0.14959385991096497 | error 0.14959385991096497
Saved final model to saved_model/128x2_repeat_xy_5e-04_robot
Model: "sequential_8"
```

Layer (type)	Output Shape	Param #
dense_24 (Dense)	(None, 128)	5248
dense_25 (Dense)	(None, 128)	16512
dense_26 (Dense)	(None, 3)	387

```
Total params: 22,147
Trainable params: 22,147
Non-trainable params: 0
```

```
epoch 100 | loss 0.18955722451210022 | error 0.18955722451210022
epoch 200 | loss 0.09936121106147766 | error 0.09936121106147766
epoch 300 | loss 0.07674676924943924 | error 0.07674676924943924
```

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epoch 400 | loss 0.06538785994052887 | error 0.06538785994052887
epoch 500 | loss 0.05681736394762993 | error 0.05681736394762993
epoch 600 | loss 0.050358906388282776 | error 0.050358906388282776
epoch 700 | loss 0.04556743800640106 | error 0.04556743800640106
epoch 800 | loss 0.041940778493881226 | error 0.041940778493881226
epoch 900 | loss 0.03904936462640762 | error 0.03904936462640762
epoch 1000 | loss 0.0367504246532917 | error 0.0367504246532917
Saved final model to saved_model/128x2_sin_cos_5e-04_salad
Model: "sequential_9"

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Layer (type)          Output Shape         Param #
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dense_27 (Dense)     (None, 128)          5248
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dense_28 (Dense)     (None, 128)          16512
-----
dense_29 (Dense)     (None, 3)             387
-----
Total params: 22,147
Trainable params: 22,147
Non-trainable params: 0

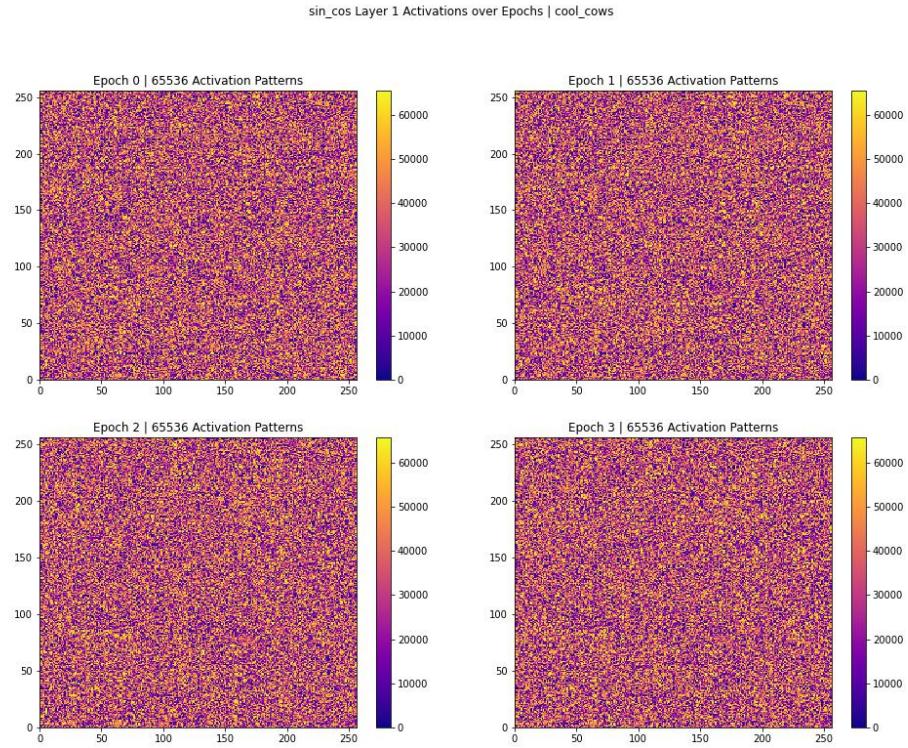
-----
epoch 100 | loss 0.25148358941078186 | error 0.25148358941078186
epoch 200 | loss 0.24167272448539734 | error 0.24167272448539734
epoch 300 | loss 0.20617809891700745 | error 0.20617809891700745
epoch 400 | loss 0.14830434322357178 | error 0.14830434322357178
epoch 500 | loss 0.11984597146511078 | error 0.11984597146511078
epoch 600 | loss 0.1103416234254837 | error 0.1103416234254837
epoch 700 | loss 0.10555674135684967 | error 0.10555674135684967
epoch 800 | loss 0.10174039751291275 | error 0.10174039751291275
epoch 900 | loss 0.09773911535739899 | error 0.09773911535739899
epoch 1000 | loss 0.09398427605628967 | error 0.09398427605628967
Saved final model to saved_model/128x2_repeat_xy_5e-04_salad

```

```
[ ]: epoch_sets = [[0, 1, 2, 3],
                  [0, 10, 20, 30],
                  [0, 100, 200, 300],
                  [700, 800, 900, 1000]]
for image in images_to_test:
    for encoding in encodings_to_test:
        for epoch_set in epoch_sets:
            ActivationRegions('saved_model', encoding, epoch_set, image, ↴
            verbose=True)
```

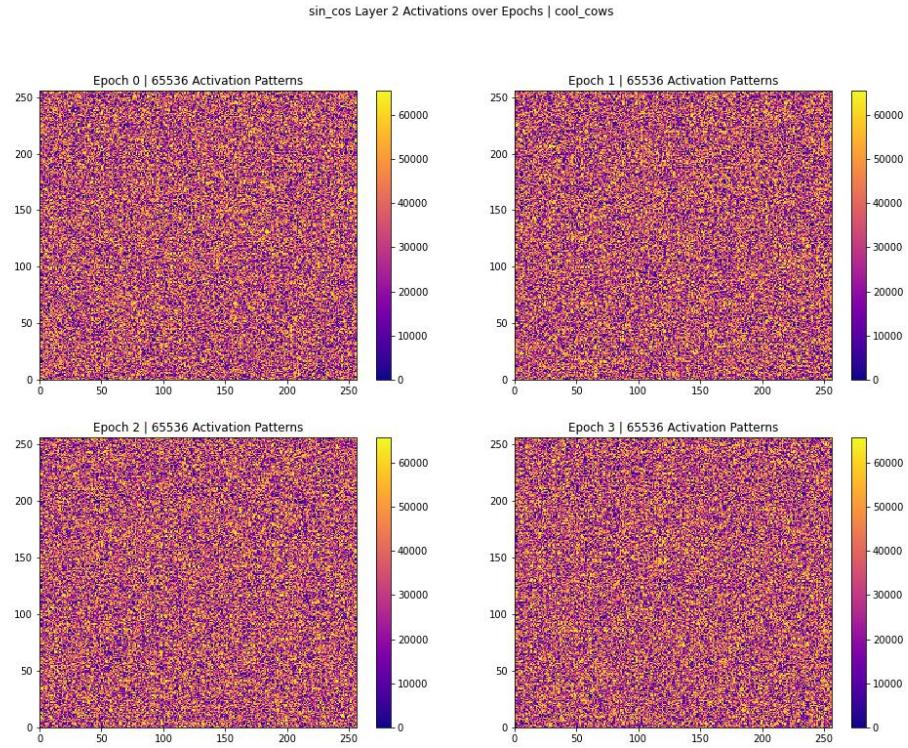
```
[4]: filename = 'experiments/activations1/cool_cows_sin_cos_0_1_2_3.jpg'
Image(filename=filename)
```

```
[4]:
```



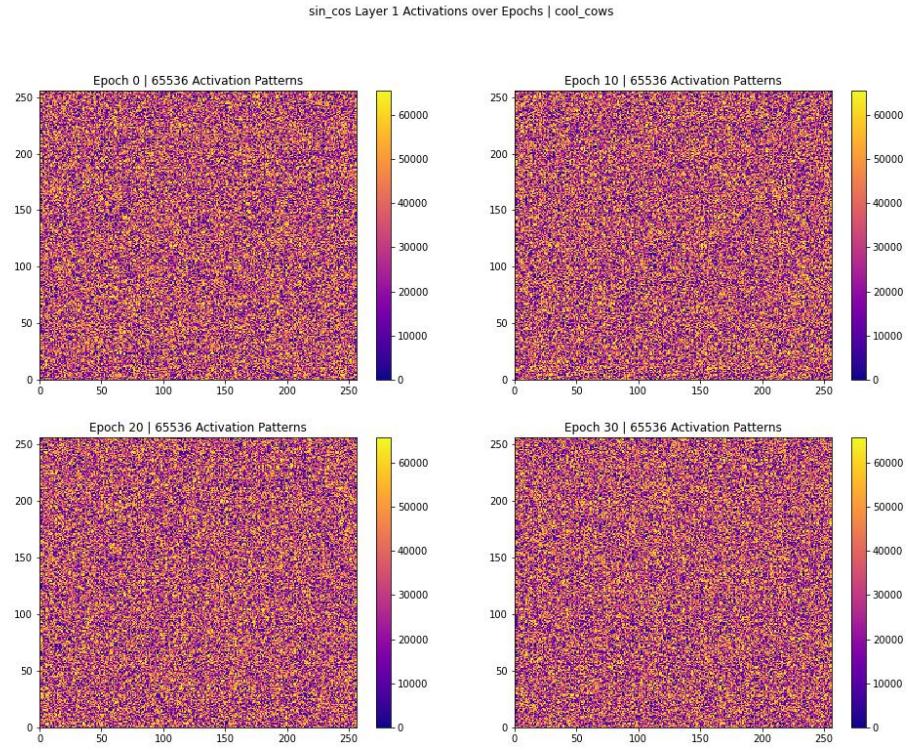
```
[5]: filename = 'experiments/activations2/cool_cows_sin_cos_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[5]:
```



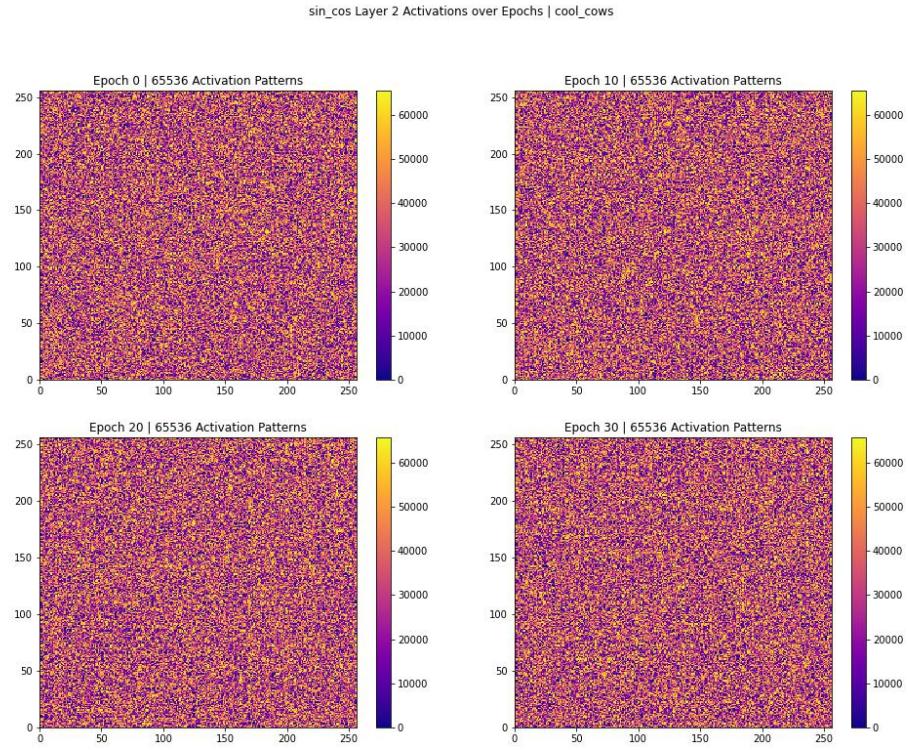
```
[6]: filename = 'experiments/activations1/cool_cows_sin_cos_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[6]:
```



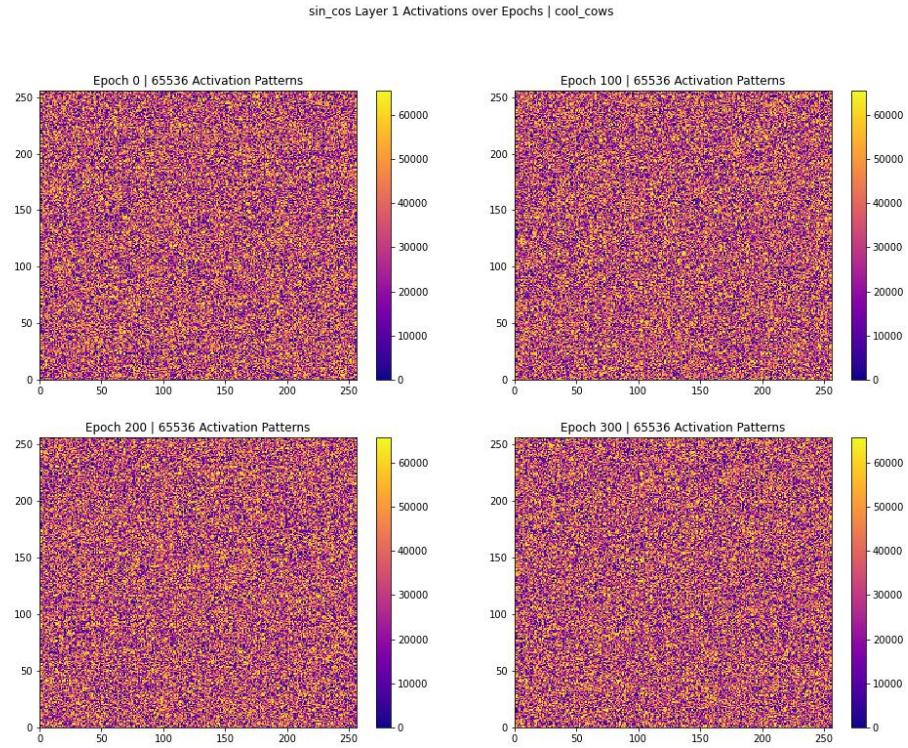
```
[7]: filename = 'experiments/activations2/cool_cows_sin_cos_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[7]:
```



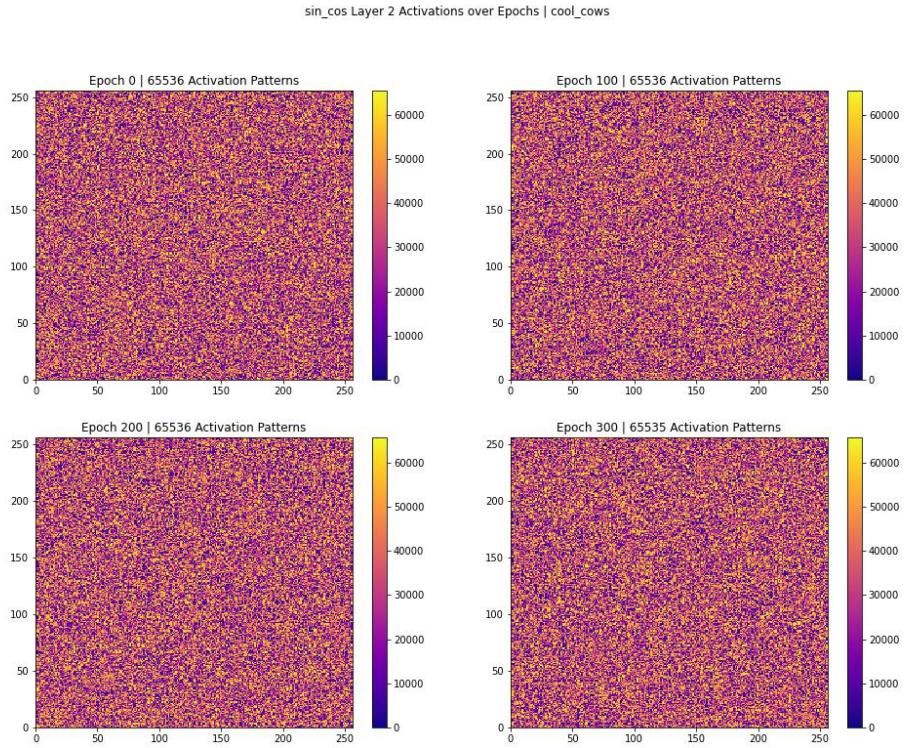
```
[8]: filename = 'experiments/activations1/cool_cows_sin_cos_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[8]:
```



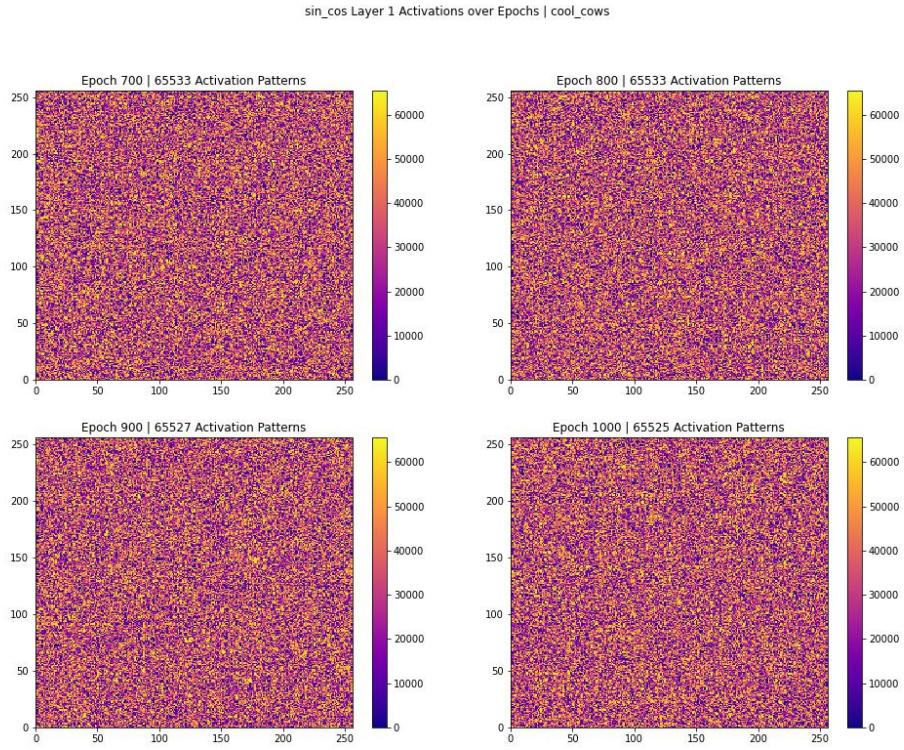
```
[9]: filename = 'experiments/activations2/cool_cows_sin_cos_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[9]:
```



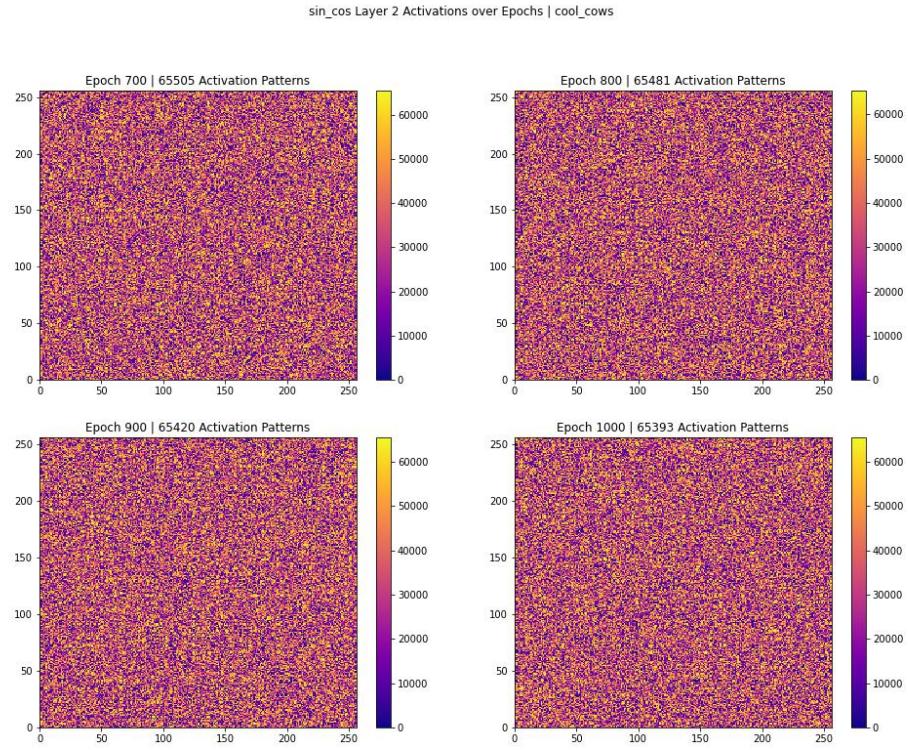
```
[10]: filename = 'experiments/activations1/cool_cows_sin_cos_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[10]:
```



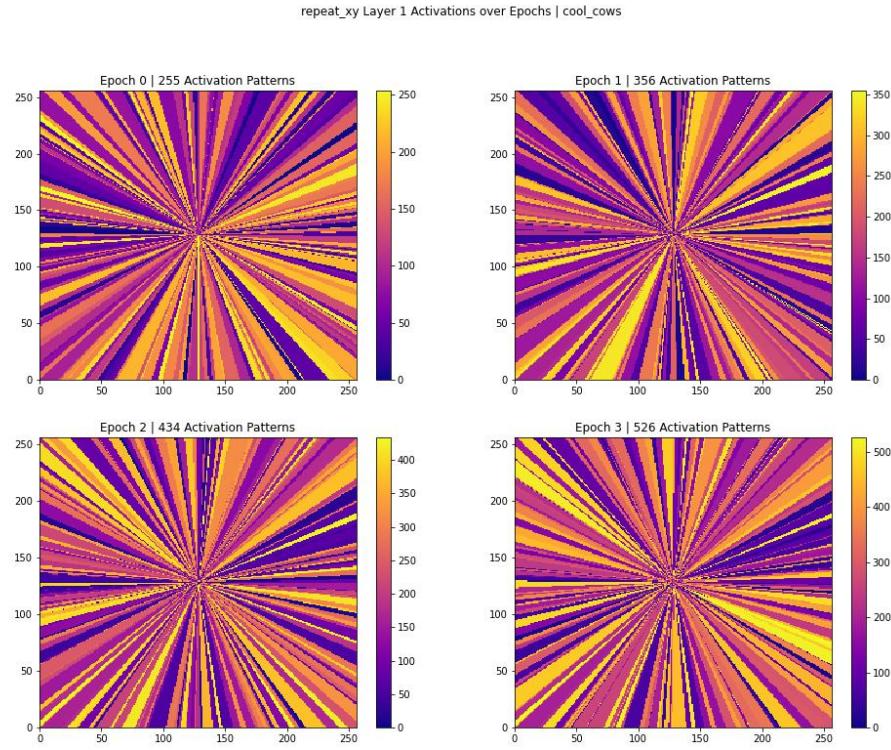
```
[11]: filename = 'experiments/activations2/cool_cows_sin_cos_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[11]:
```



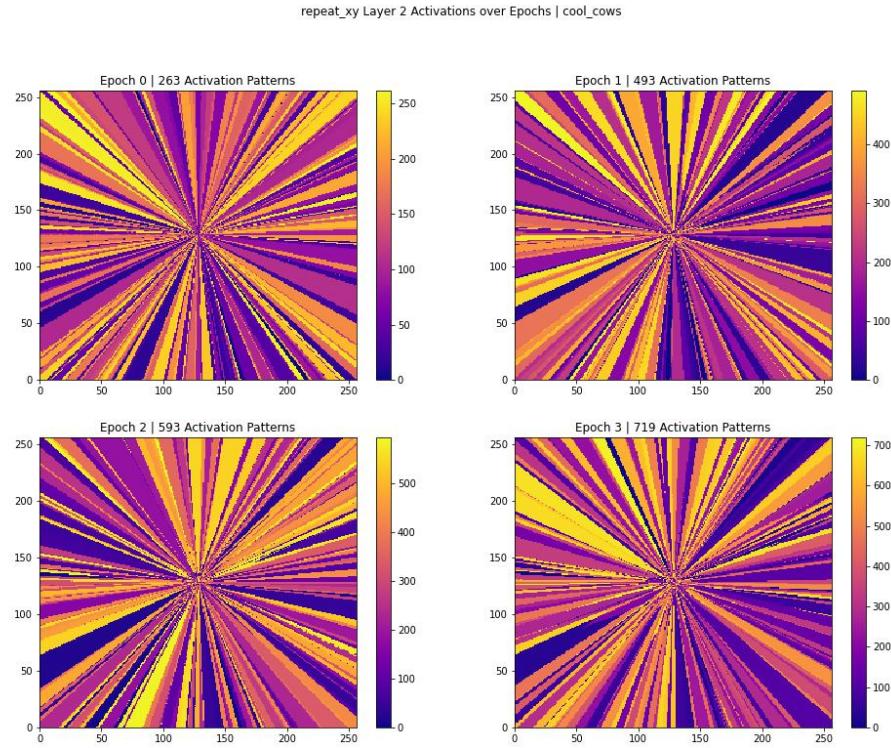
```
[12]: filename = 'experiments/activations1/cool_cows_repeat_xy_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[12]:
```



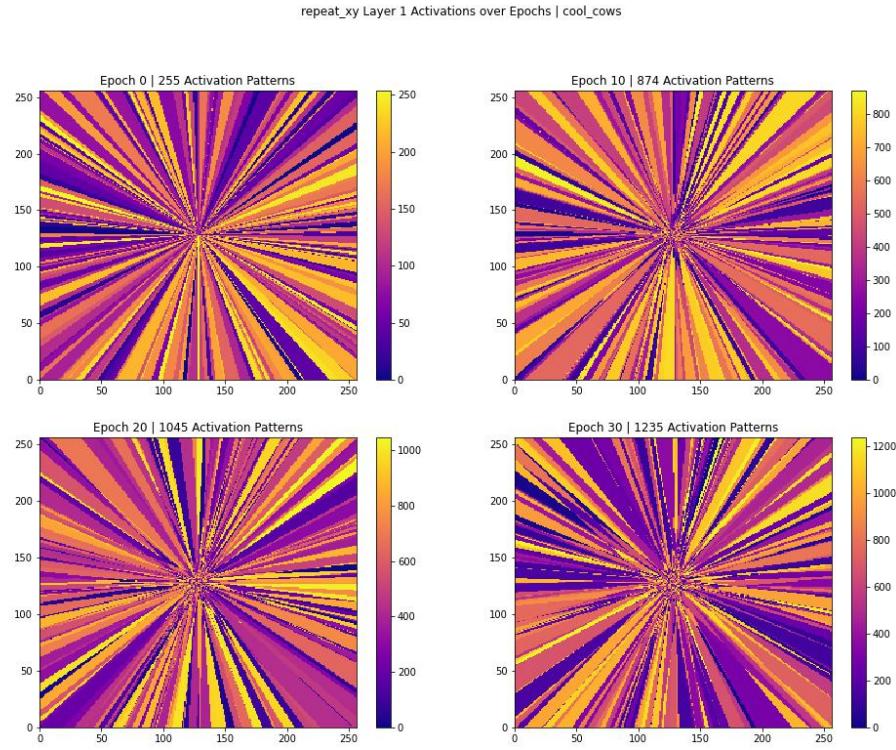
```
[13]: filename = 'experiments/activations2/cool_cows_repeat_xy_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[13]:
```



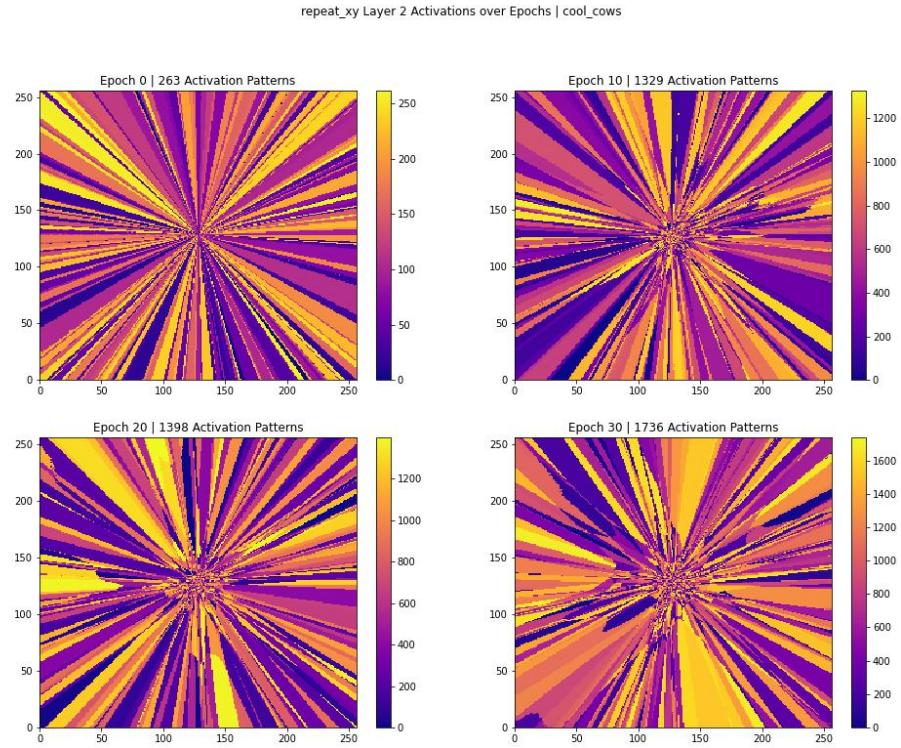
```
[14]: filename = 'experiments/activations1/cool_cows_repeat_xy_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[14]:
```



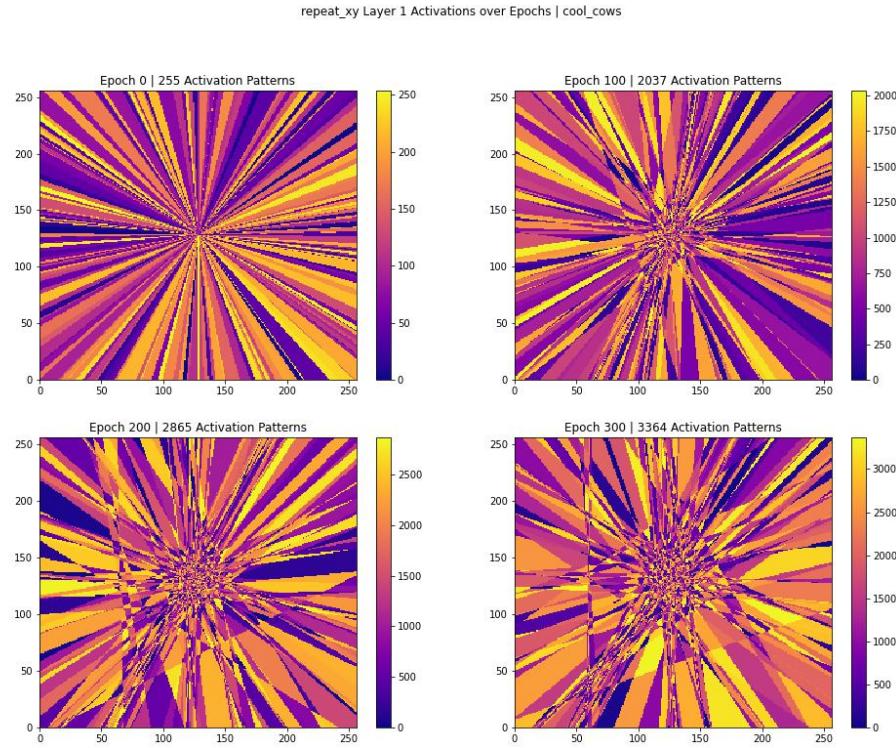
```
[15]: filename = 'experiments/activations2/cool_cows_repeat_xy_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[15]:
```



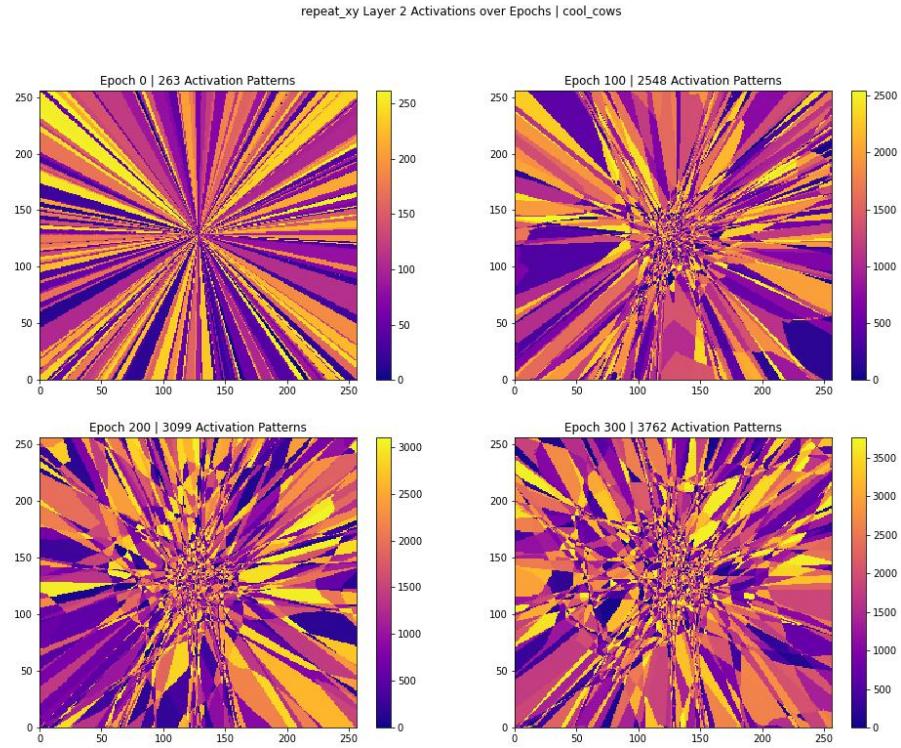
```
[16]: filename = 'experiments/activations1/cool_cows_repeat_xy_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[16]:
```



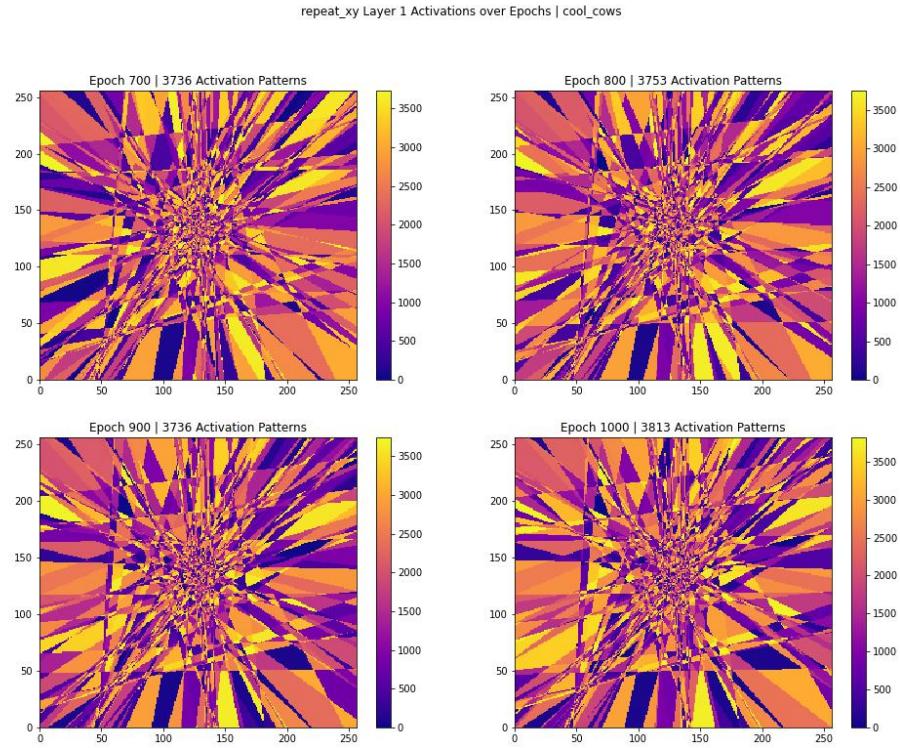
```
[17]: filename = 'experiments/activations2/cool_cows_repeat_xy_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[17]:
```



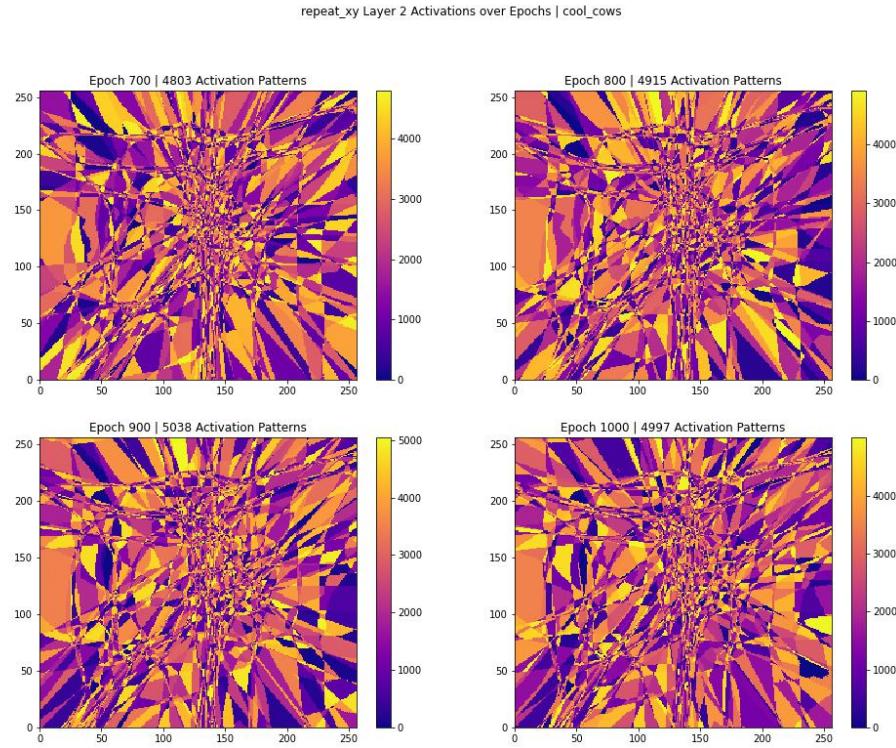
```
[18]: filename = 'experiments/activations1/cool_cows_repeat_xy_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[18]:
```



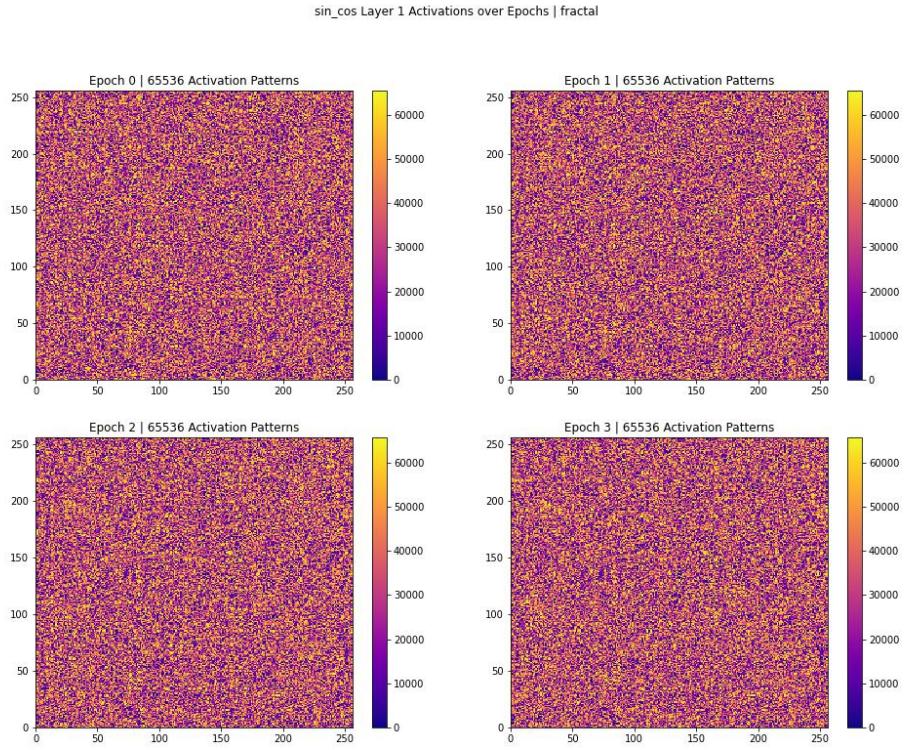
```
[19]: filename = 'experiments/activations2/cool_cows_repeat_xy_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[19]:
```



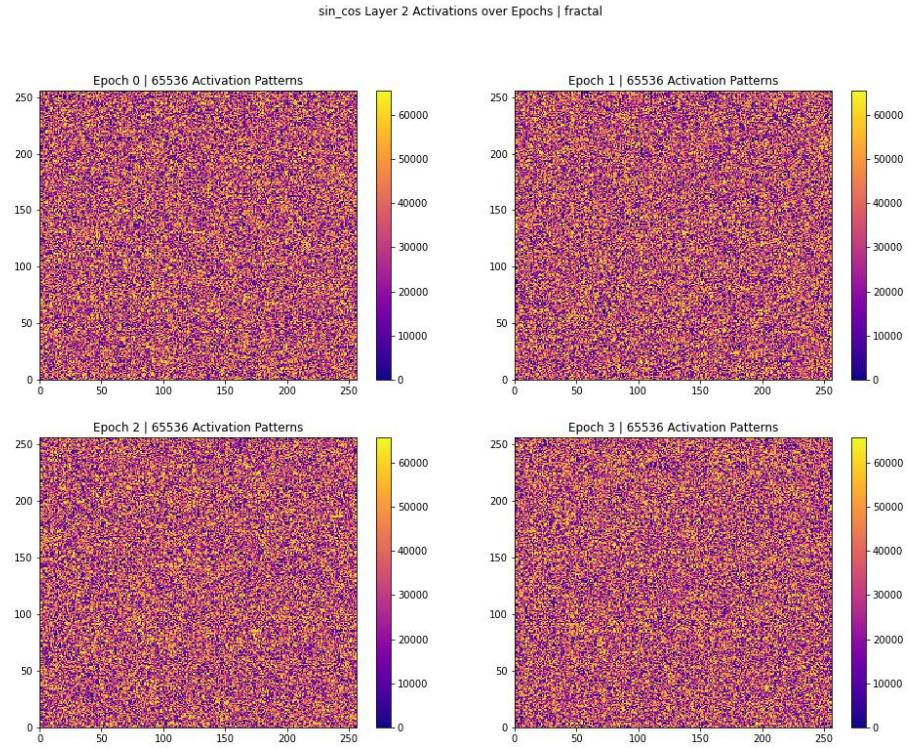
```
[20]: filename = 'experiments/activations1/fractal_sin_cos_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[20]:
```



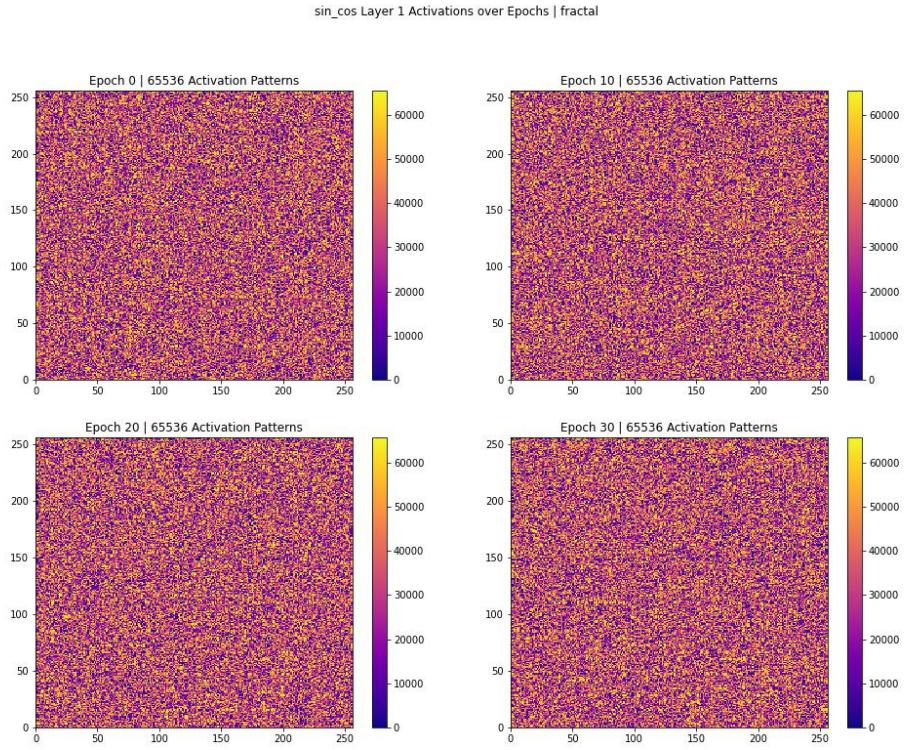
```
[21]: filename = 'experiments/activations2/fractal_sin_cos_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[21]:
```



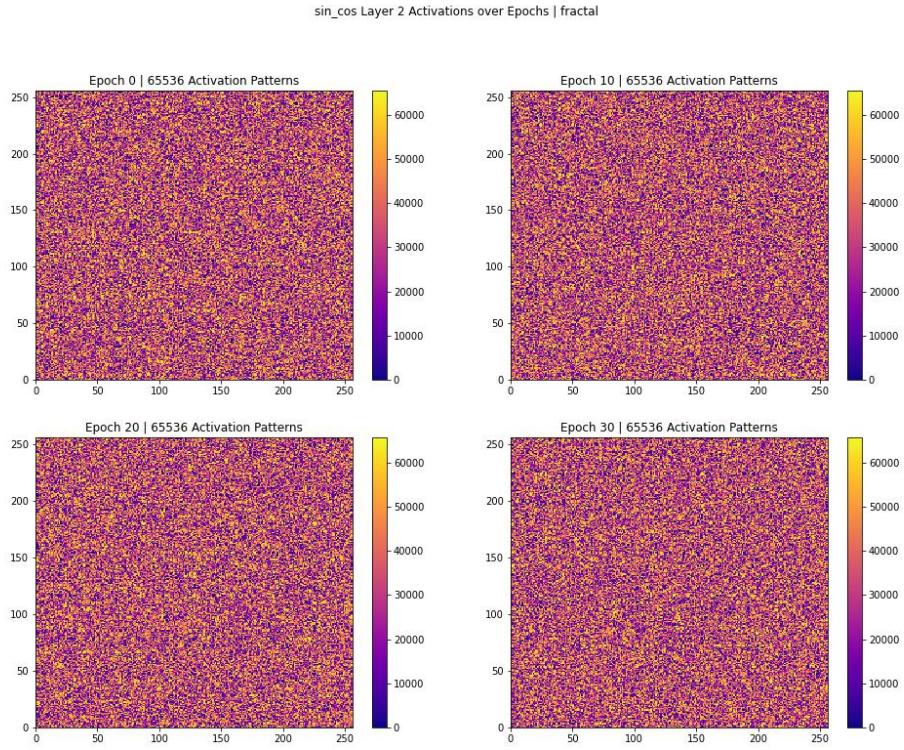
```
[22]: filename = 'experiments/activations1/fractal_sin_cos_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[22]:
```



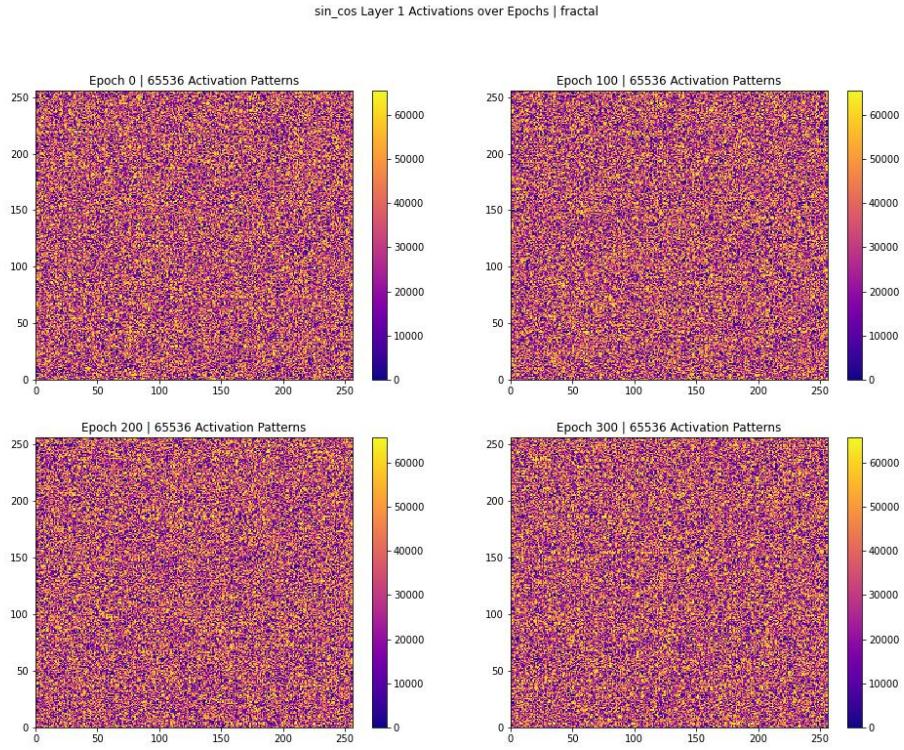
```
[23]: filename = 'experiments/activations2/fractal_sin_cos_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[23]:
```



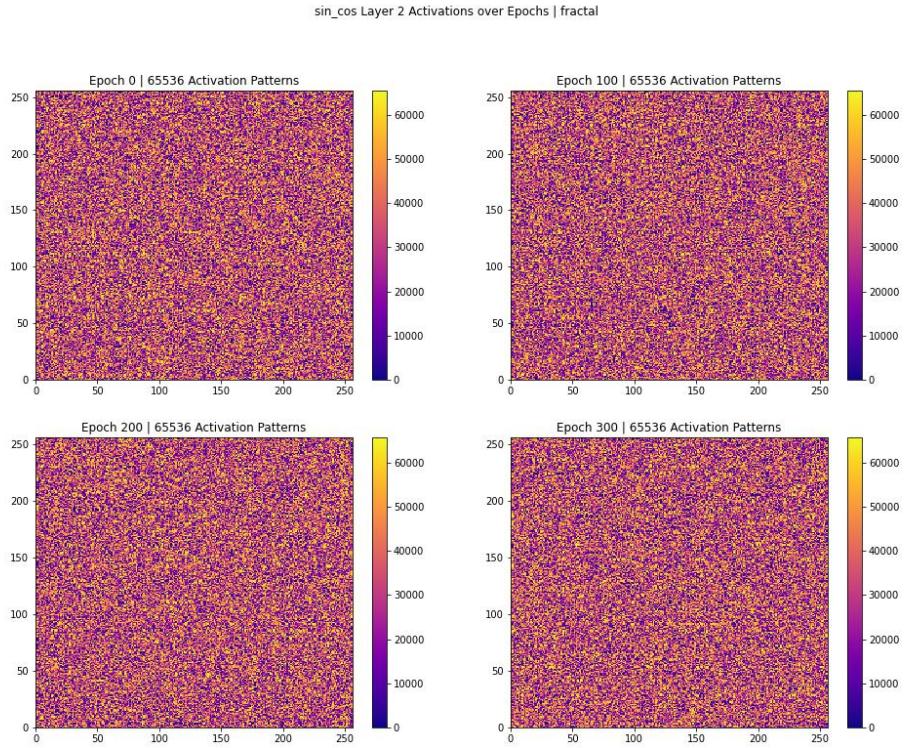
```
[24]: filename = 'experiments/activations1/fractal_sin_cos_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[24]:
```



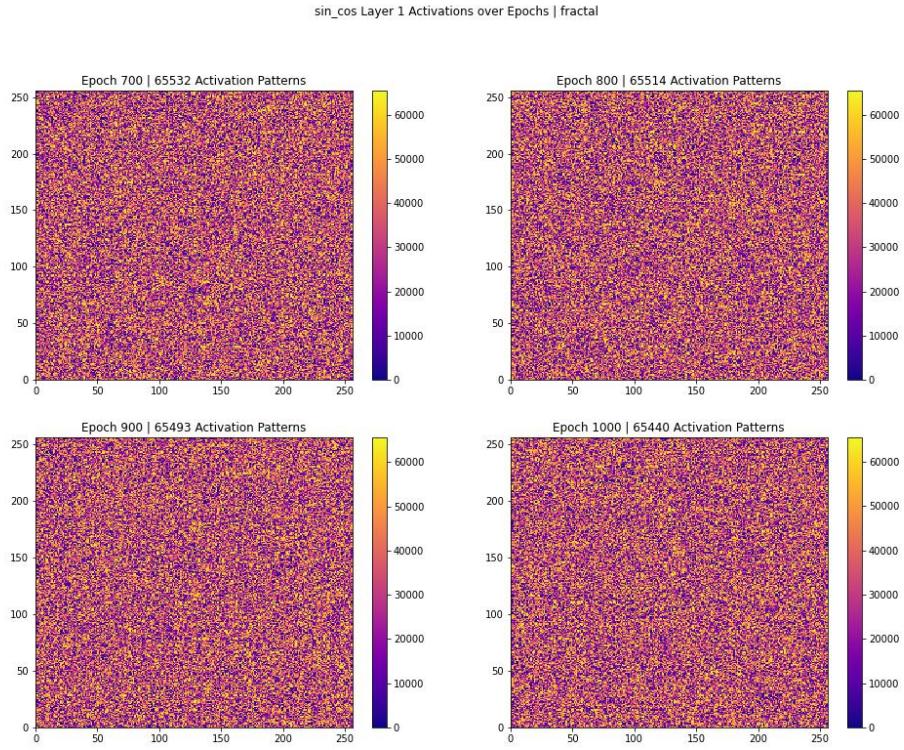
```
[25]: filename = 'experiments/activations2/fractal_sin_cos_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[25]:
```



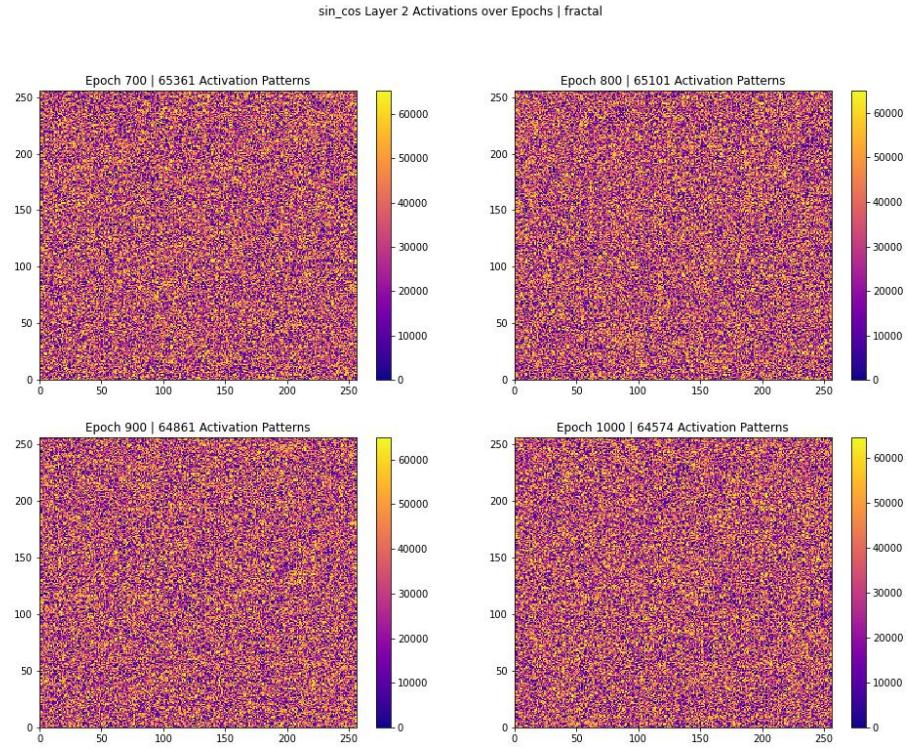
```
[26]: filename = 'experiments/activations1/fractal_sin_cos_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[26]:
```



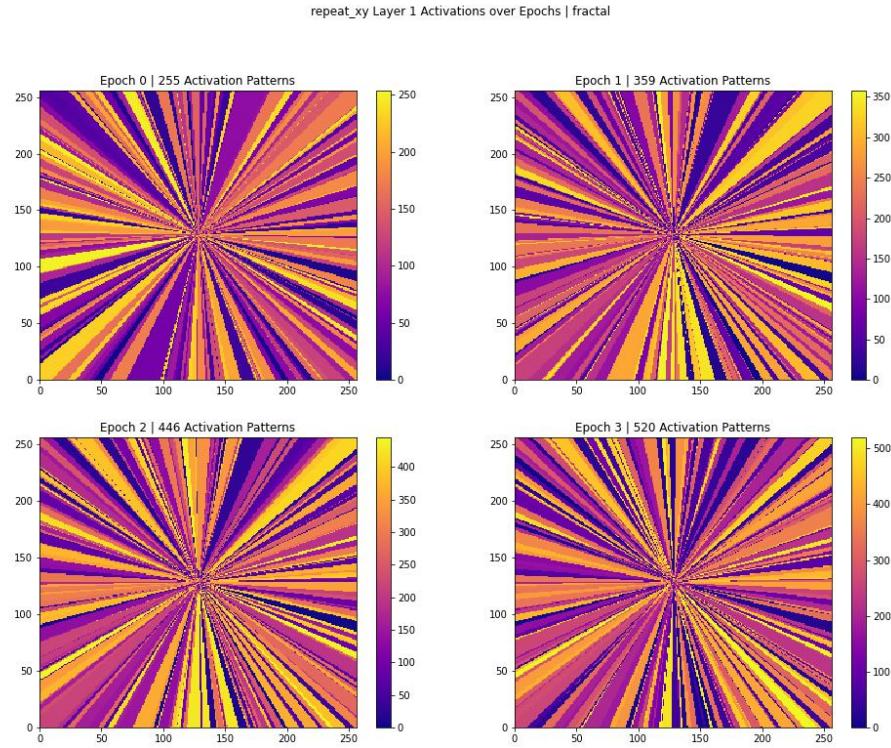
```
[27]: filename = 'experiments/activations2/fractal_sin_cos_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[27]:
```



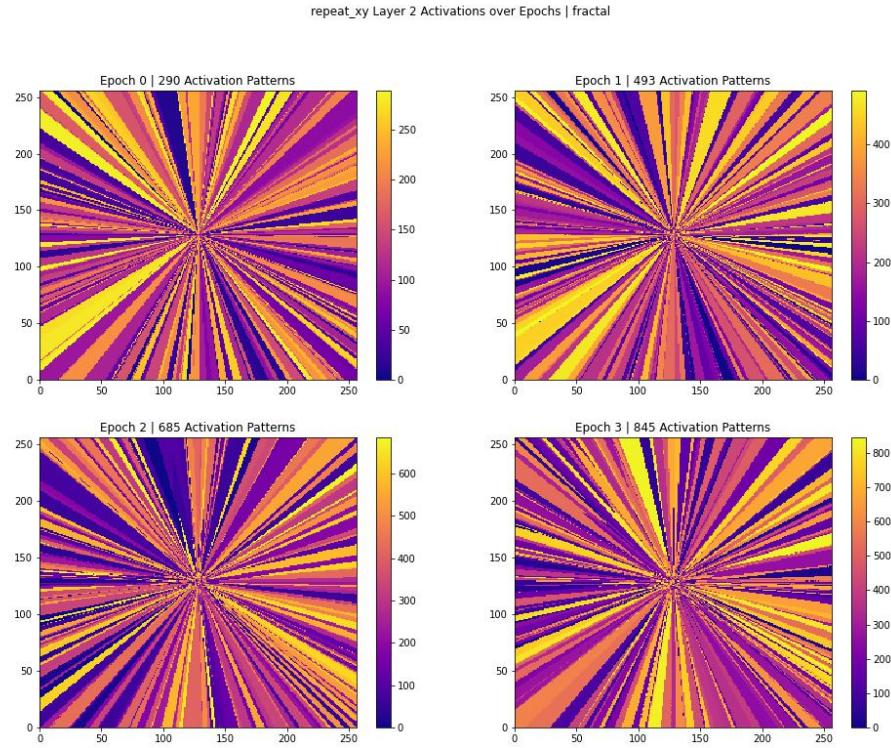
```
[28]: filename = 'experiments/activations1/fractal_repeat_xy_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[28]:
```



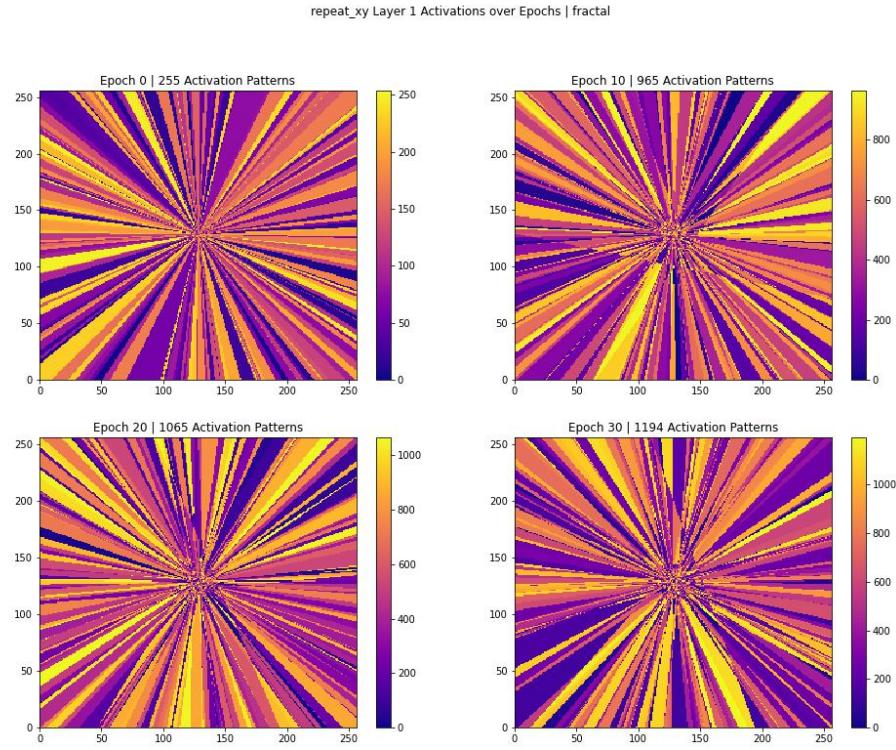
```
[29]: filename = 'experiments/activations2/fractal_repeat_xy_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[29]:
```



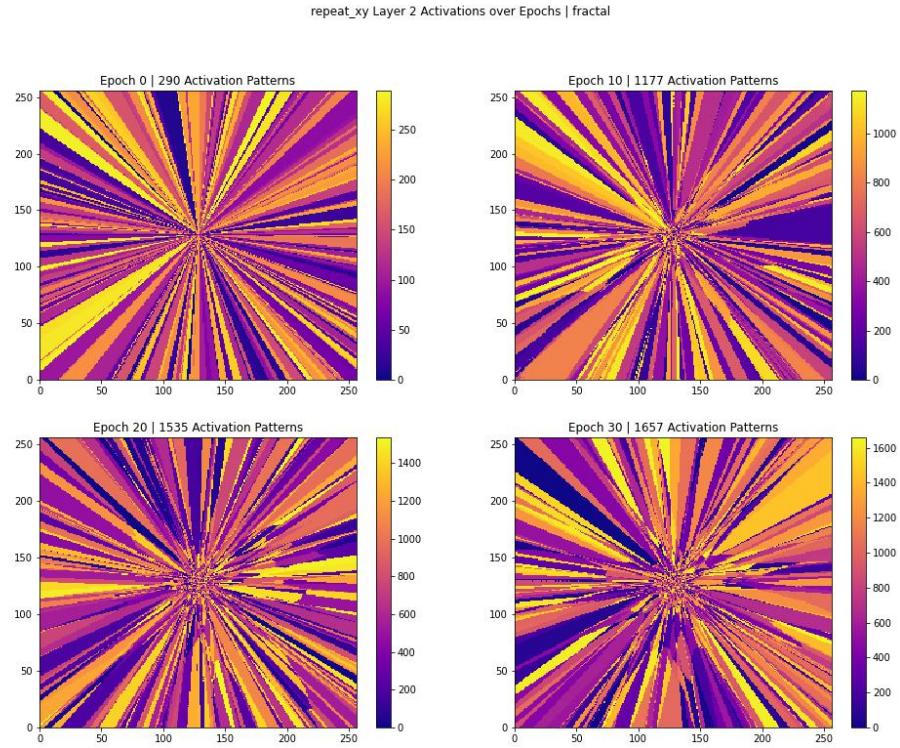
```
[30]: filename = 'experiments/activations1/fractal_repeat_xy_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[30]:
```



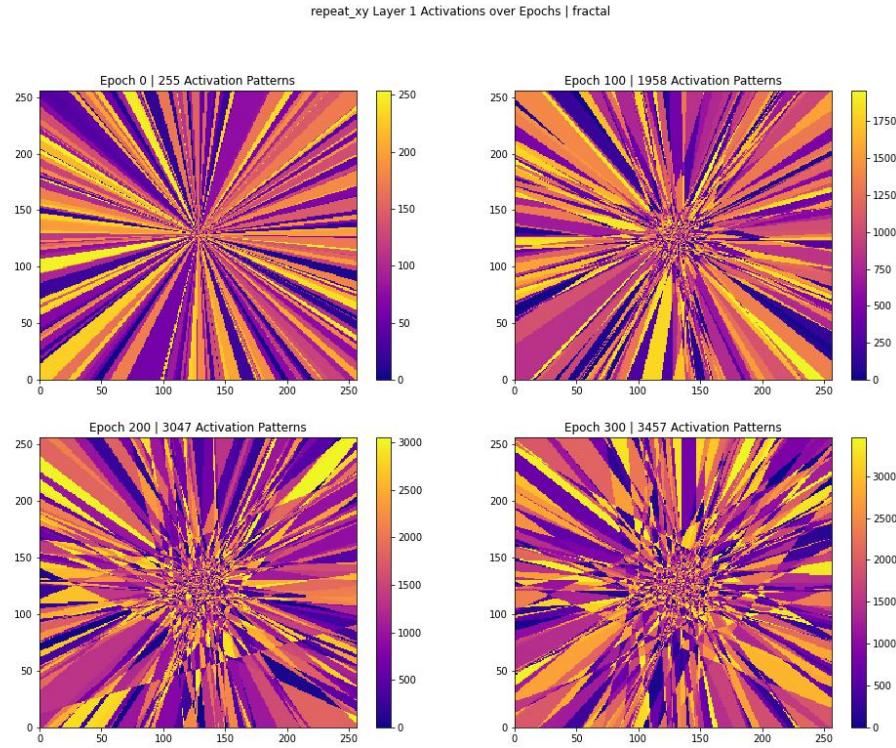
```
[31]: filename = 'experiments/activations2/fractal_repeat_xy_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[31]:
```



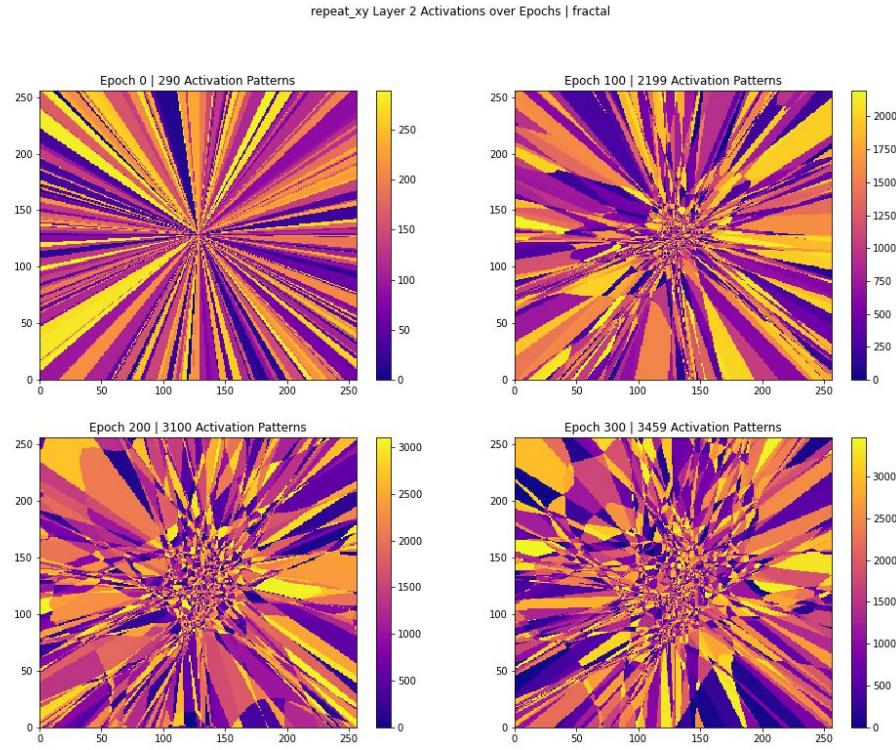
```
[32]: filename = 'experiments/activations1/fractal_repeat_xy_0_100_200_300.jpg'
Image(filename=filename)
```

```
[32]:
```



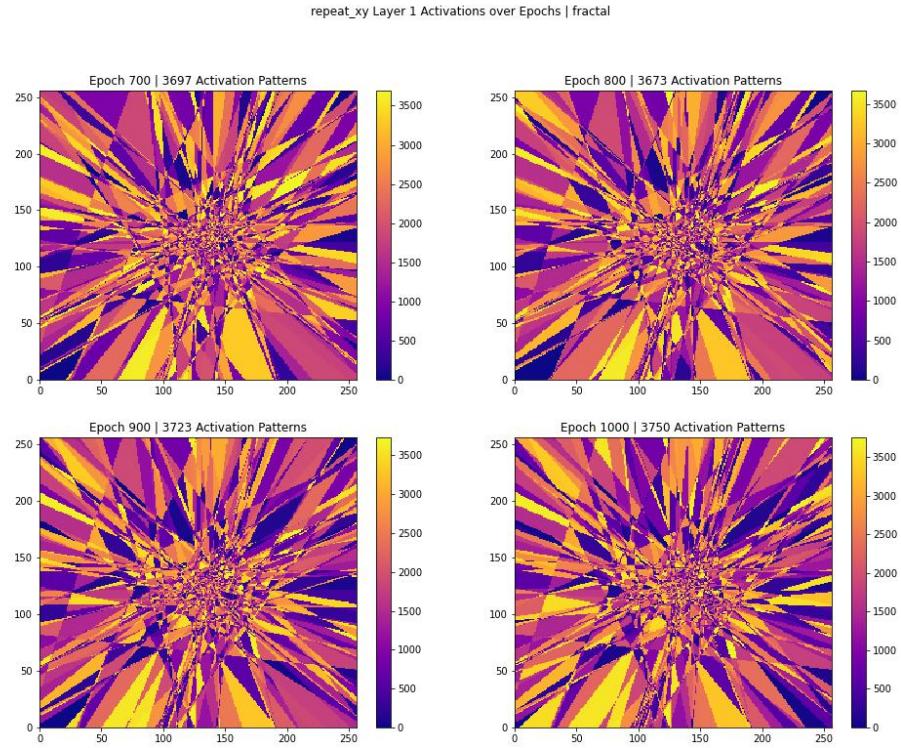
```
[33]: filename = 'experiments/activations2/fractal_repeat_xy_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[33]:
```



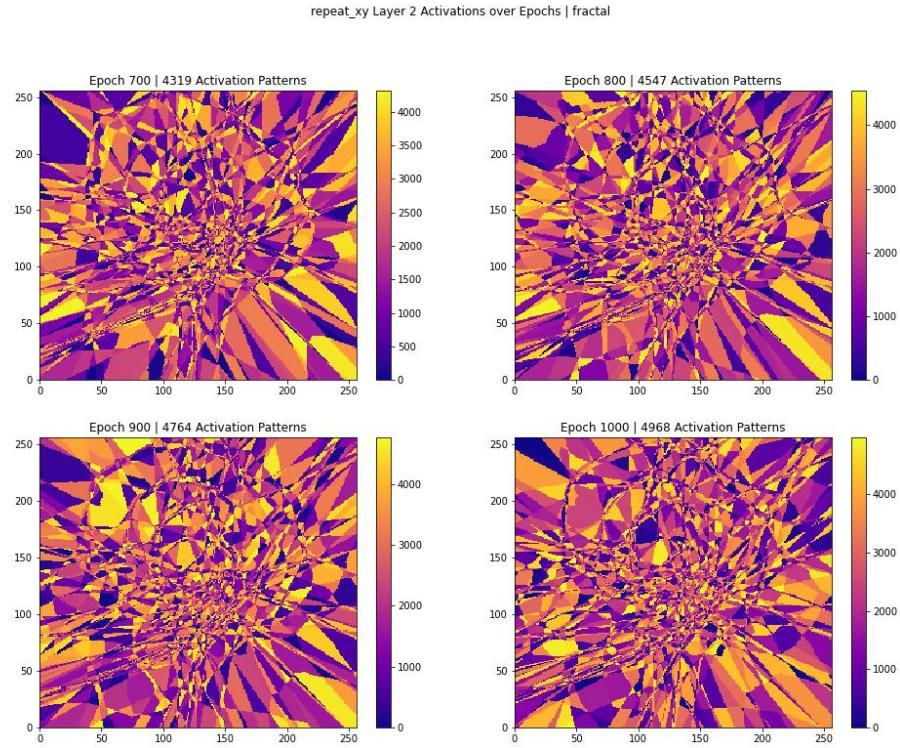
```
[34]: filename = 'experiments/activations1/fractal_repeat_xy_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[34]:
```



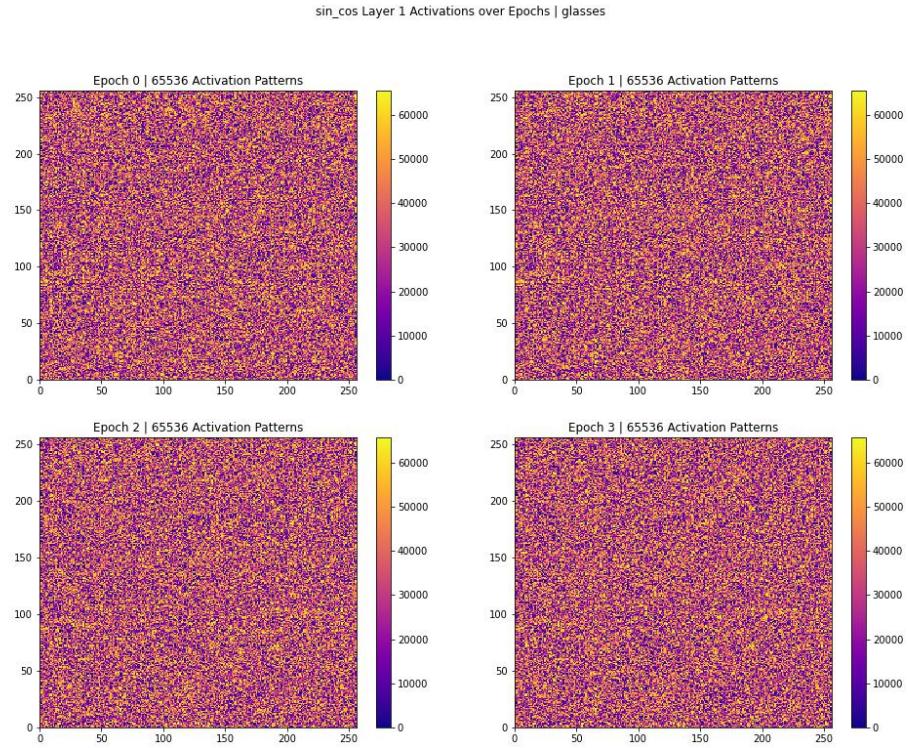
```
[35]: filename = 'experiments/activations2/fractal_repeat_xy_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[35]:
```



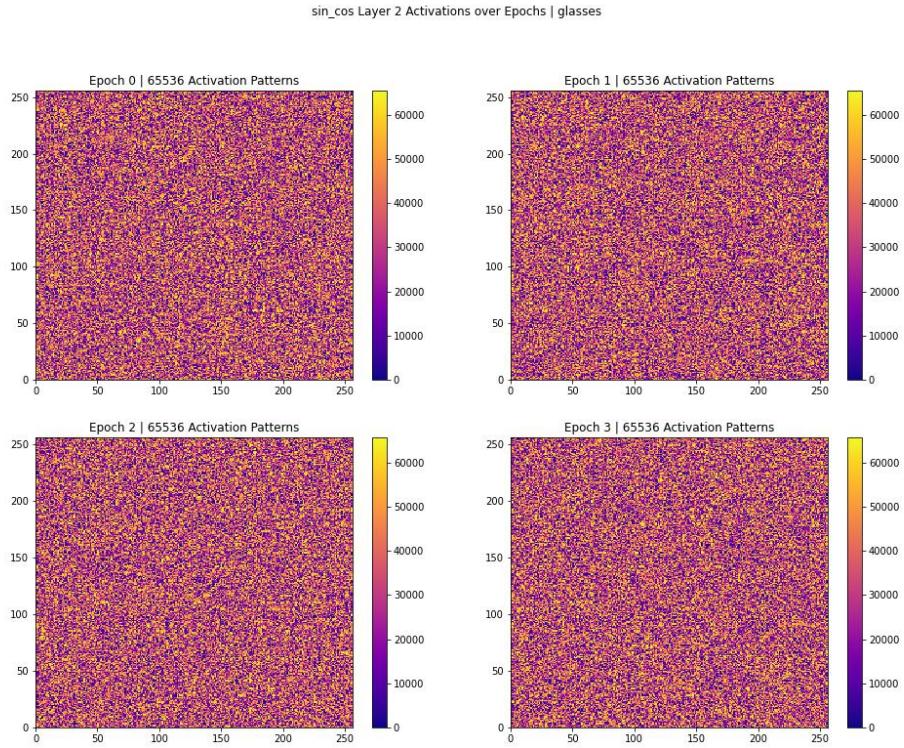
```
[36]: filename = 'experiments/activations1/glasses_sin_cos_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[36]:
```



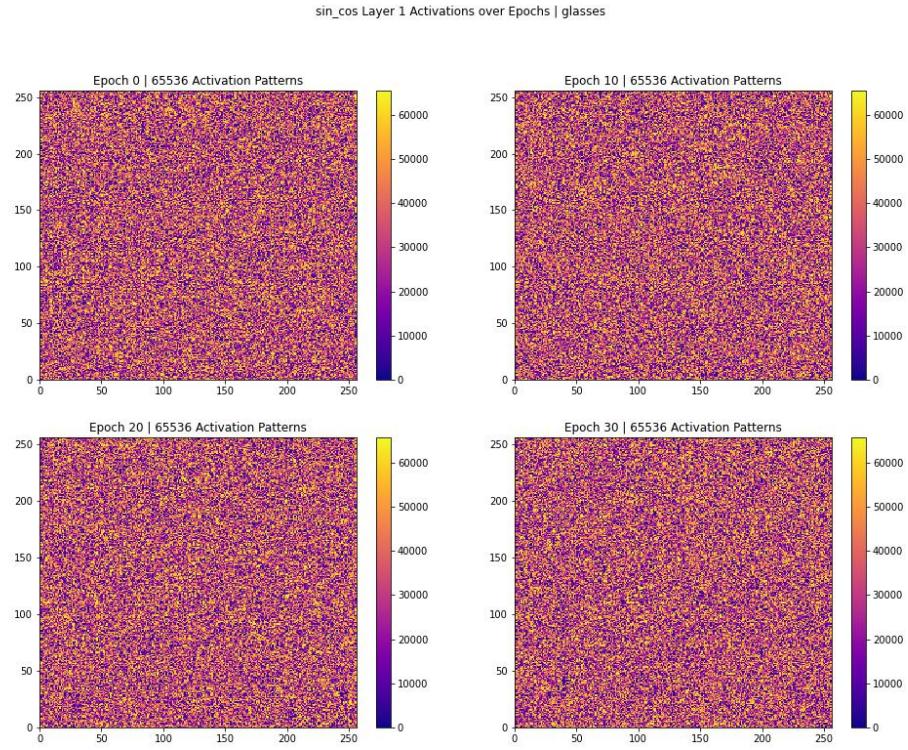
```
[37]: filename = 'experiments/activations2/glasses_sin_cos_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[37]:
```



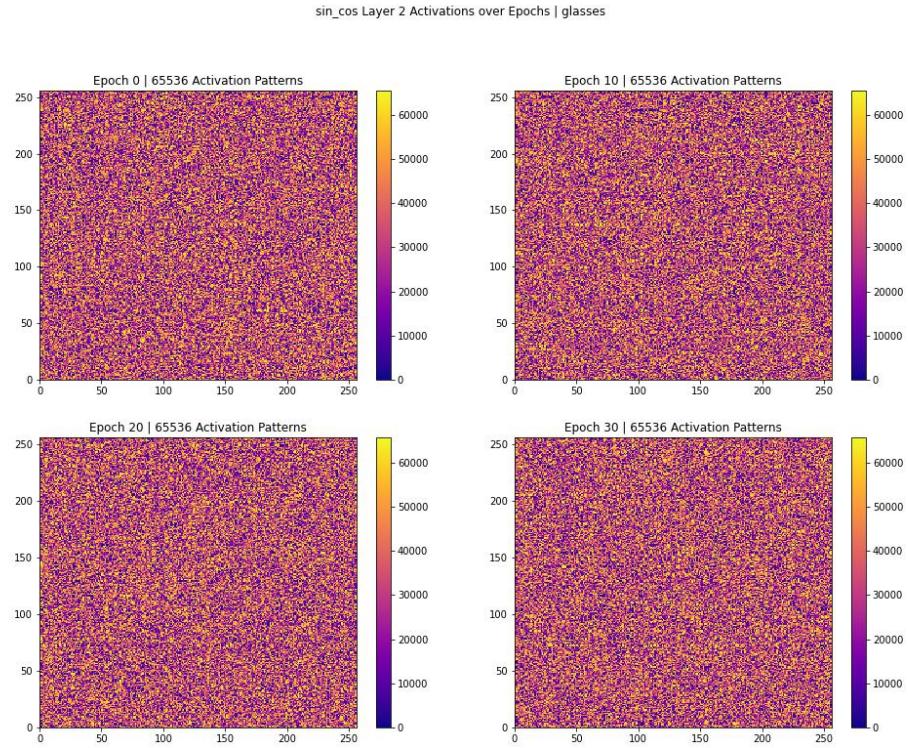
```
[38]: filename = 'experiments/activations1/glasses_sin_cos_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[38]:
```



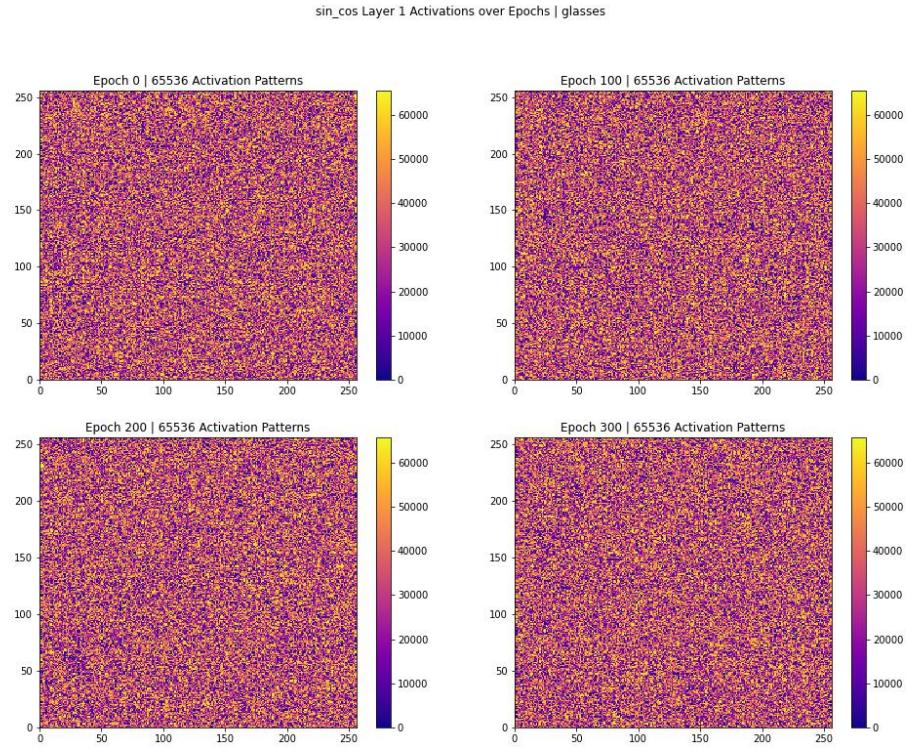
```
[39]: filename = 'experiments/activations2/glasses_sin_cos_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[39]:
```



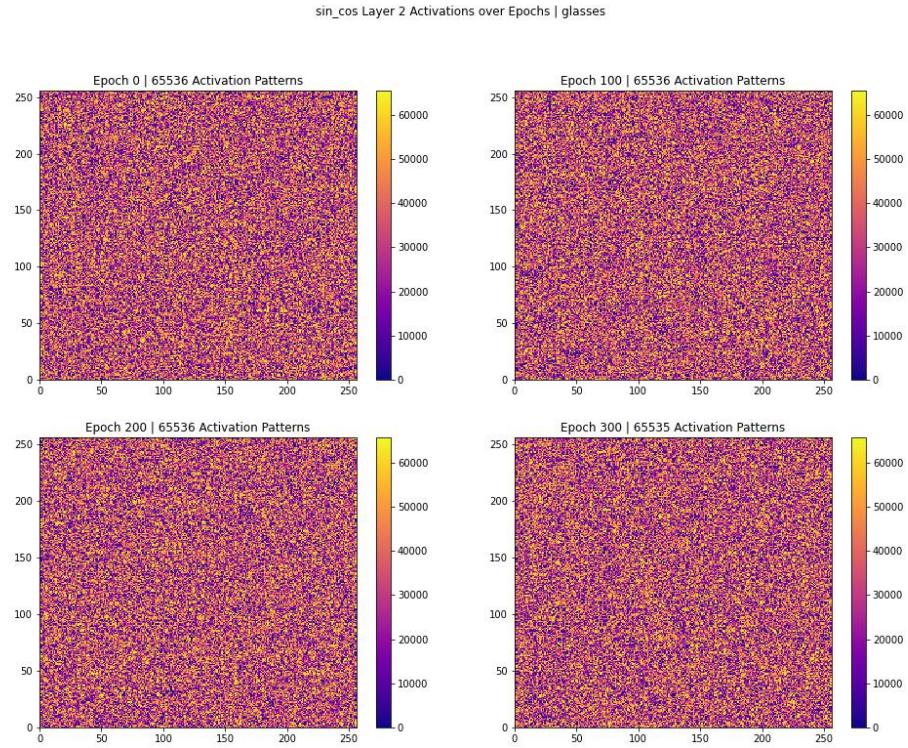
```
[40]: filename = 'experiments/activations1/glasses_sin_cos_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[40]:
```



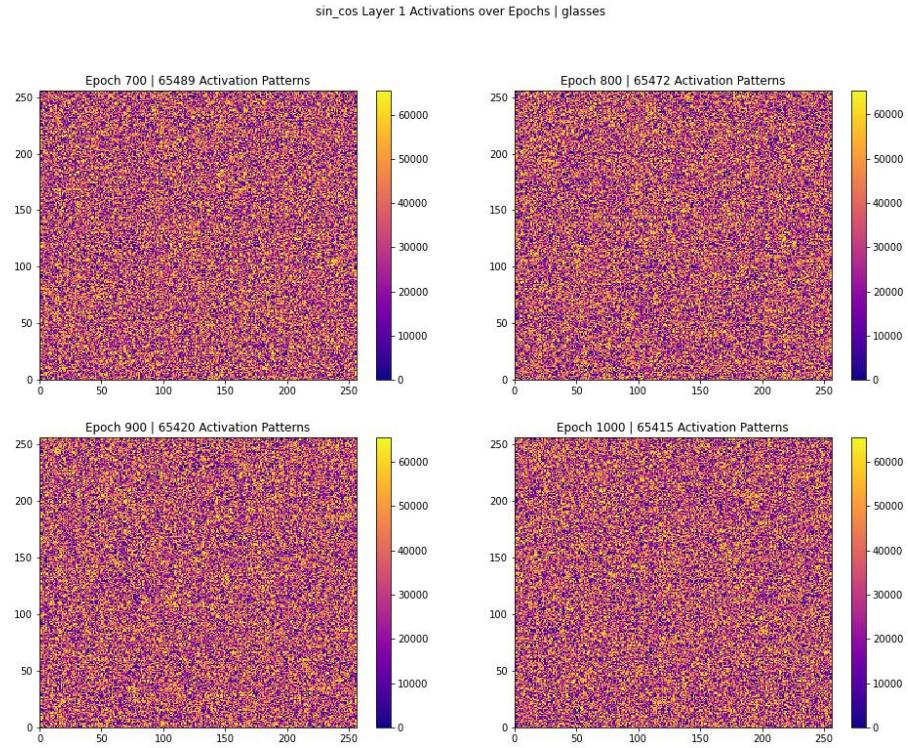
```
[41]: filename = 'experiments/activations2/glasses_sin_cos_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[41]:
```



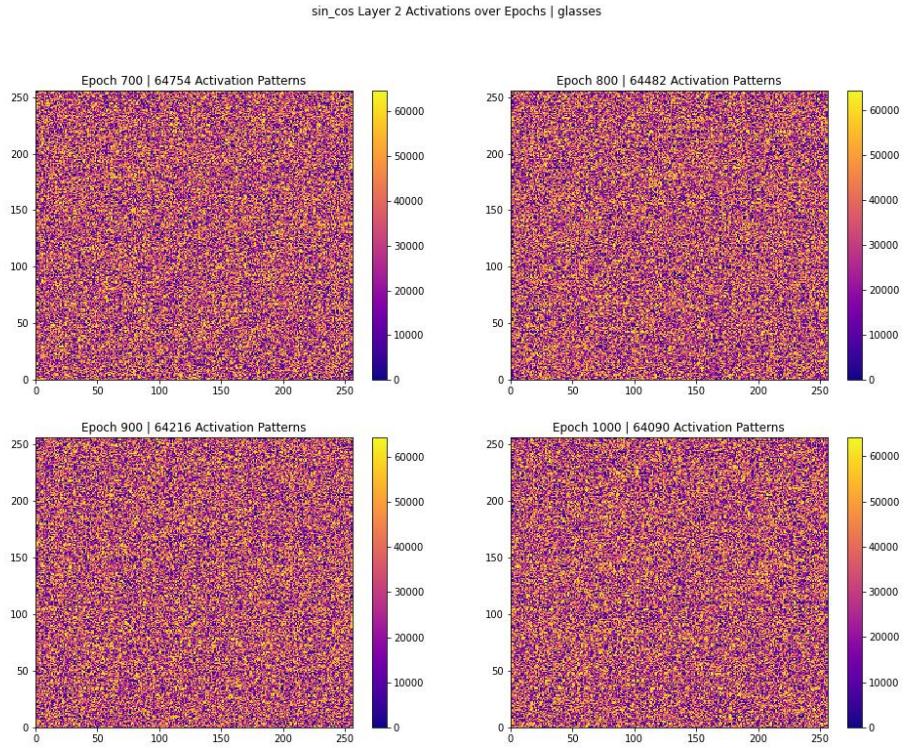
```
[42]: filename = 'experiments/activations1/glasses_sin_cos_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[42]:
```



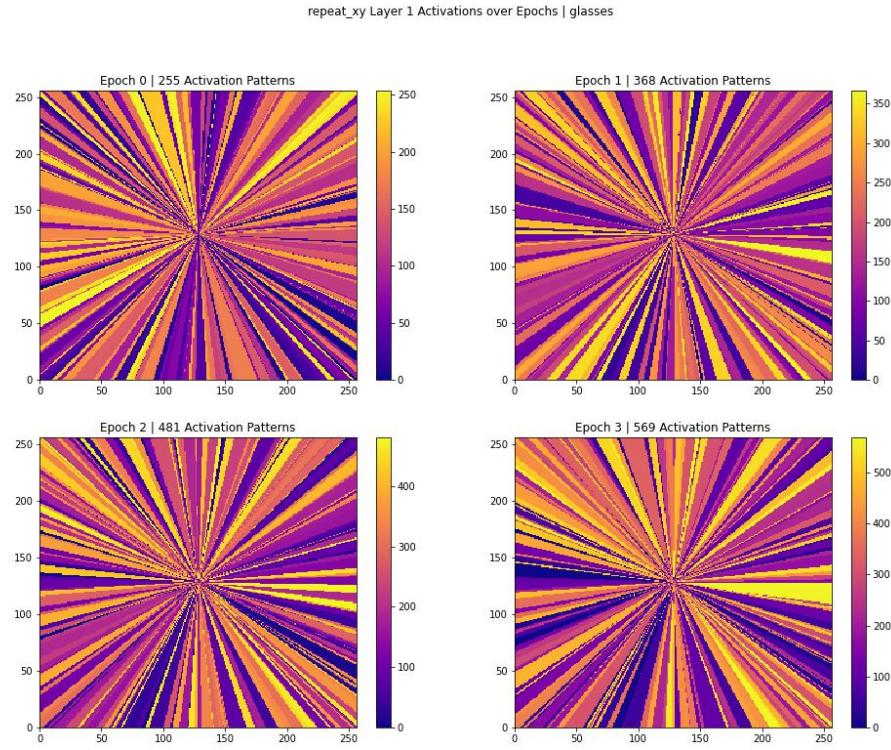
```
[43]: filename = 'experiments/activations2/glasses_sin_cos_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[43]:
```



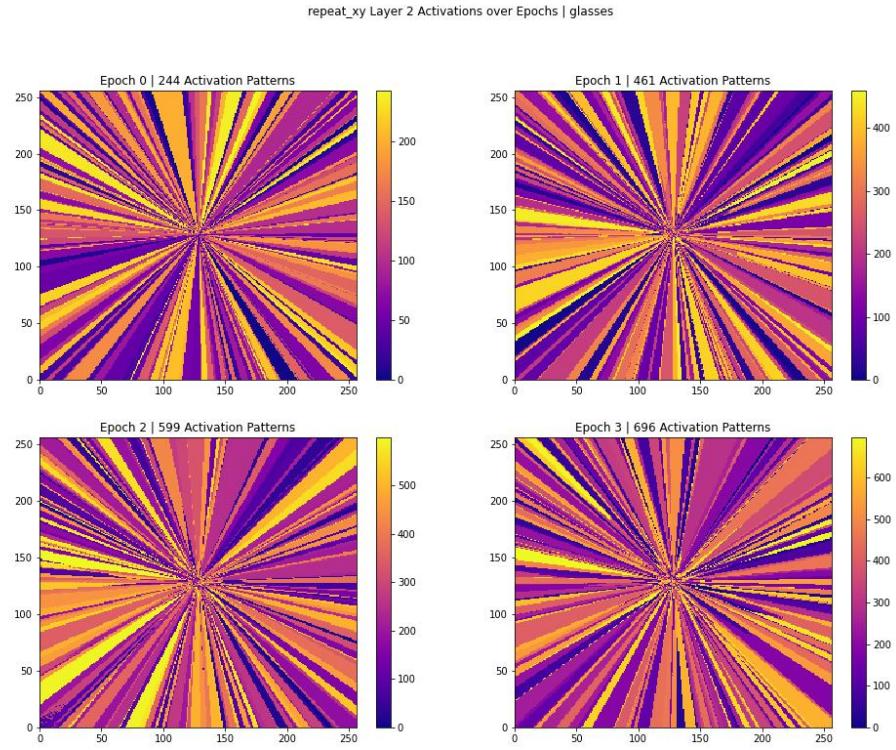
```
[44]: filename = 'experiments/activations1/glasses_repeat_xy_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[44]:
```



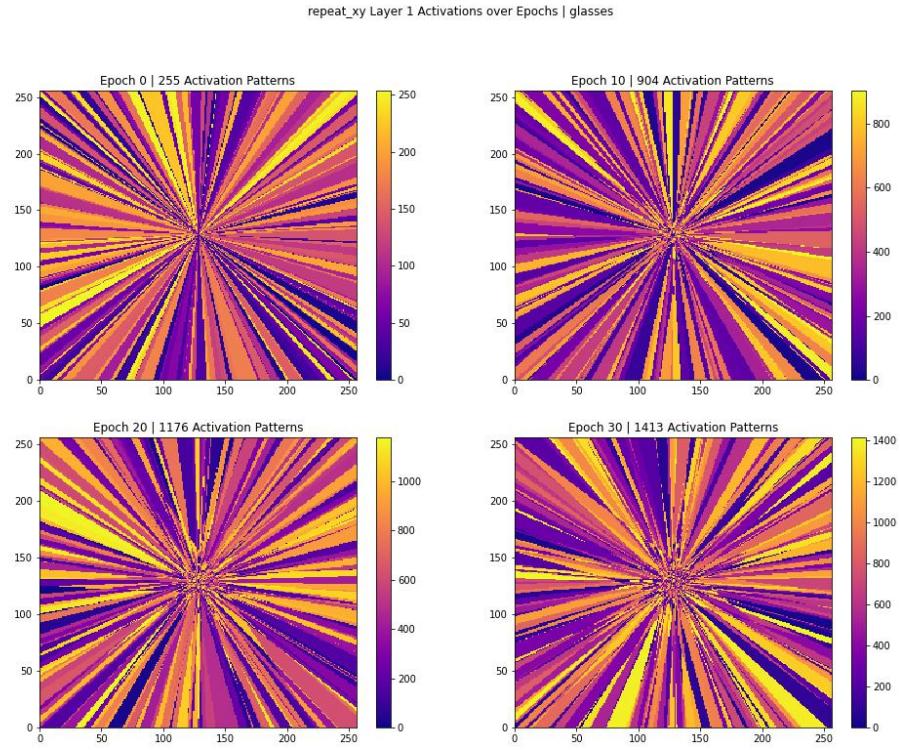
```
[45]: filename = 'experiments/activations2/glasses_repeat_xy_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[45]:
```



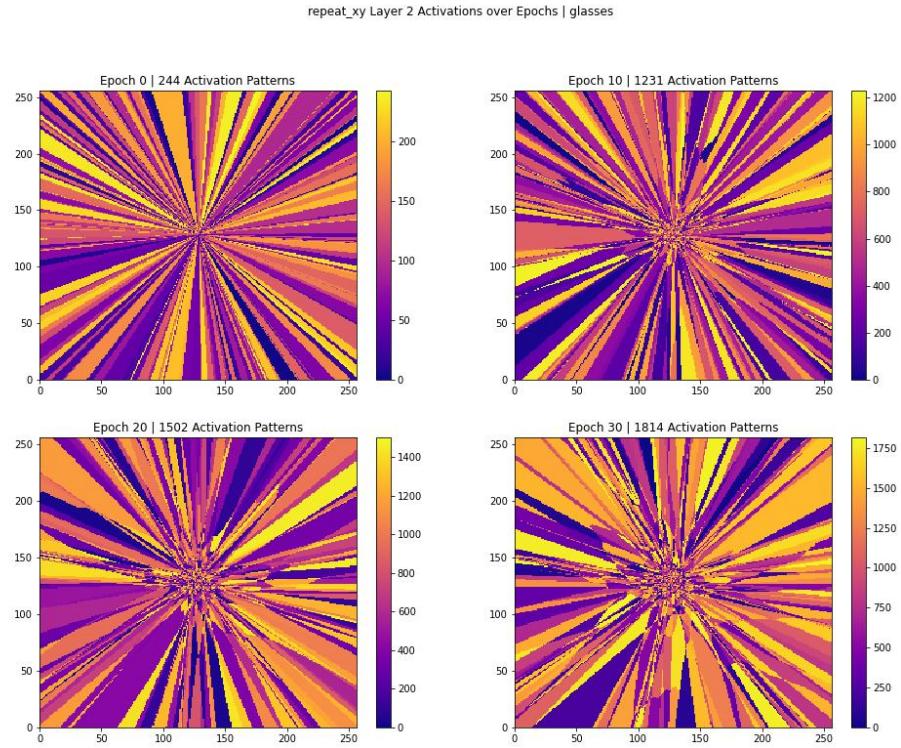
```
[46]: filename = 'experiments/activations1/glasses_repeat_xy_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[46]:
```



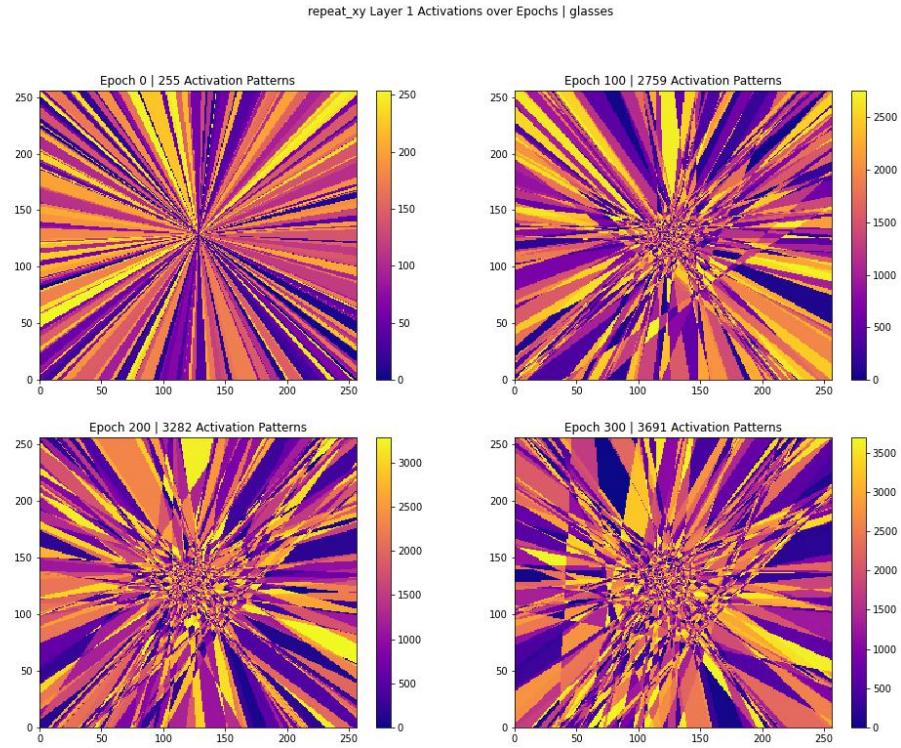
```
[47]: filename = 'experiments/activations2/glasses_repeat_xy_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[47]:
```



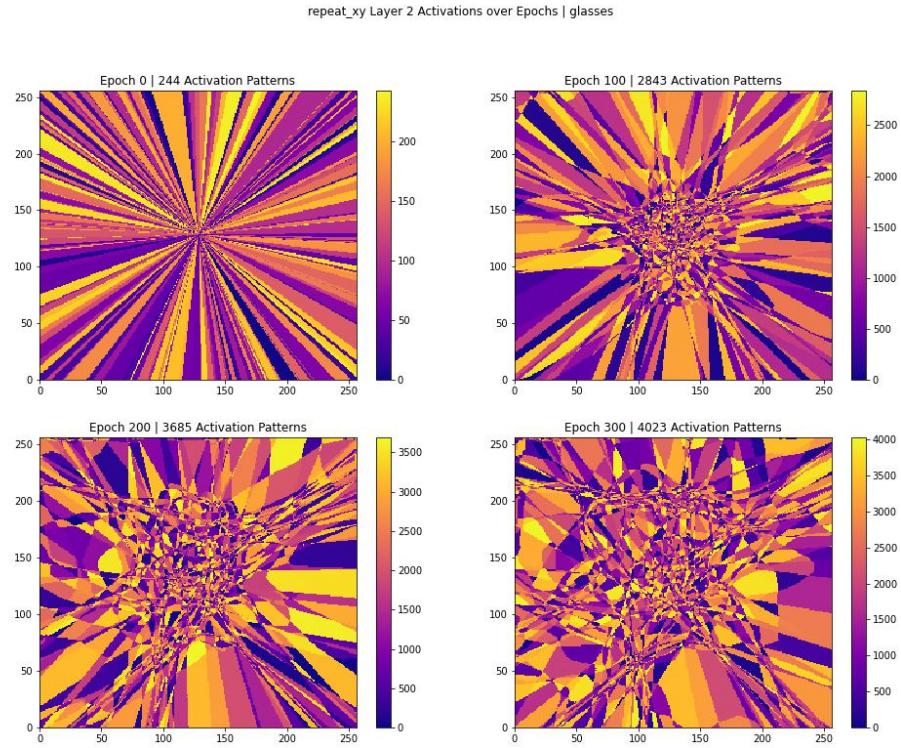
```
[48]: filename = 'experiments/activations1/glasses_repeat_xy_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[48]:
```



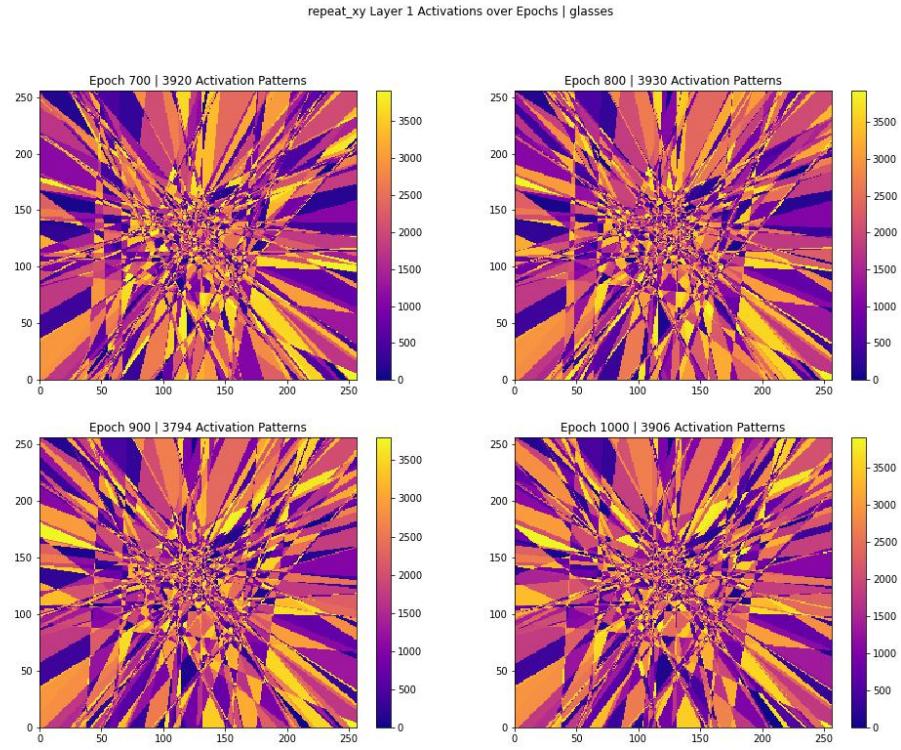
```
[49]: filename = 'experiments/activations2/glasses_repeat_xy_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[49]:
```



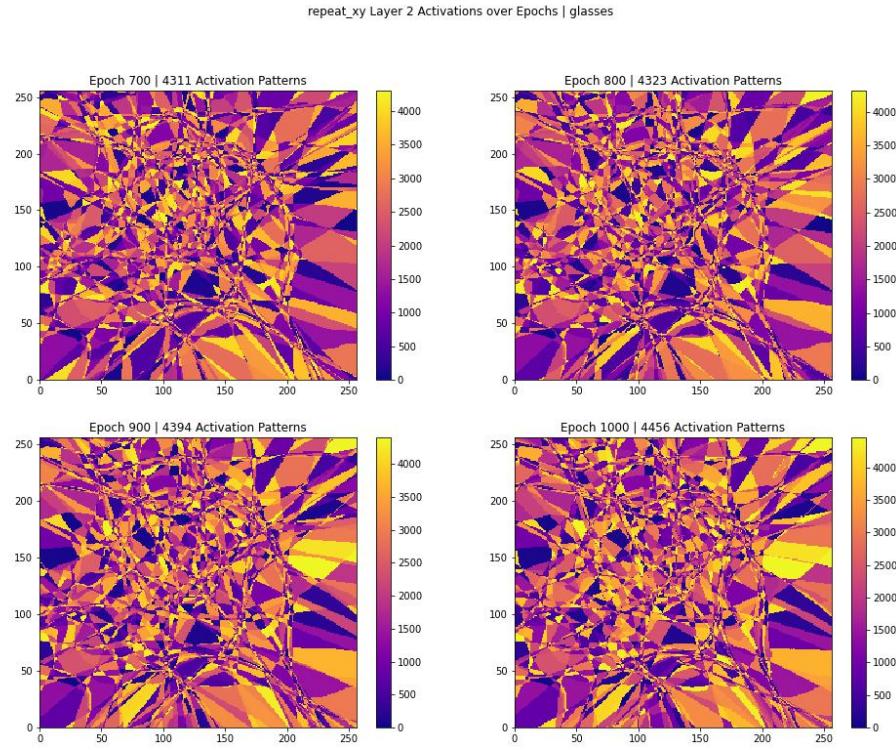
```
[50]: filename = 'experiments/activations1/glasses_repeat_xy_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[50]:
```



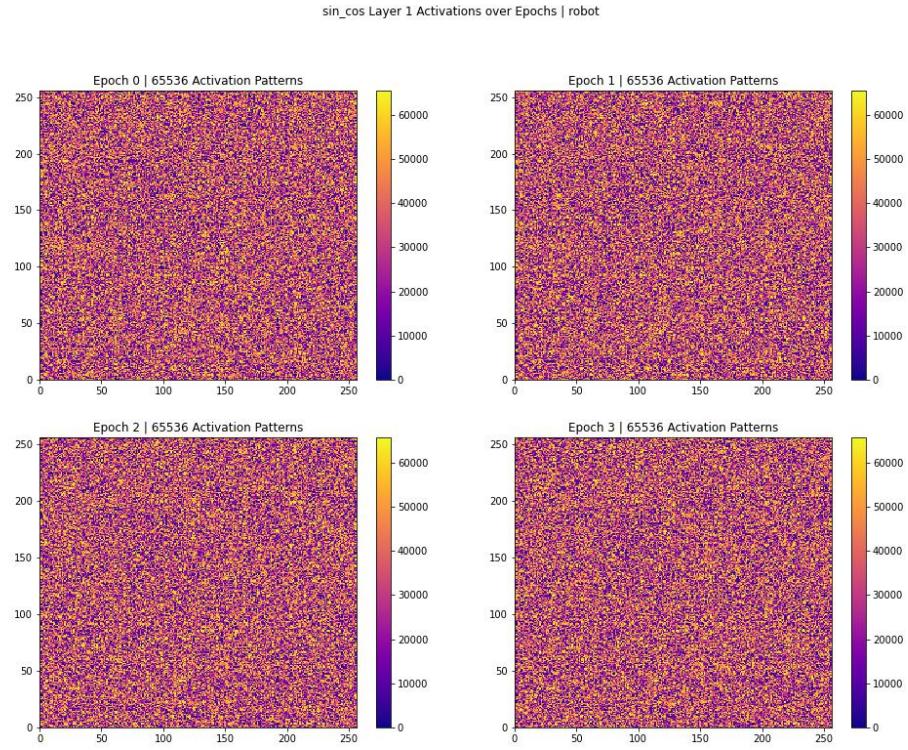
```
[51]: filename = 'experiments/activations2/glasses_repeat_xy_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[51]:
```



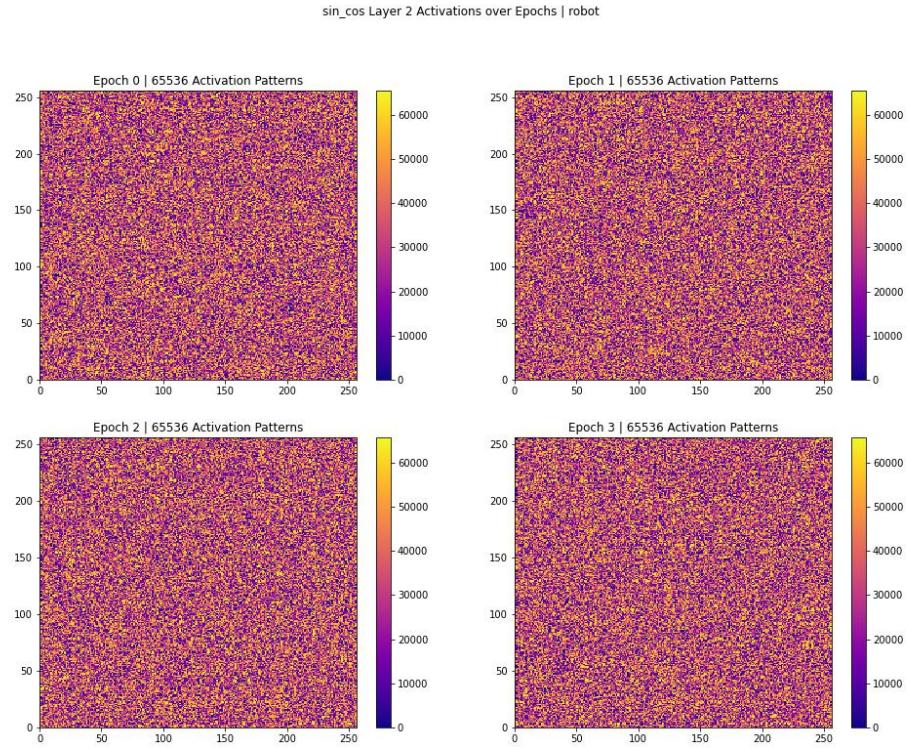
```
[52]: filename = 'experiments/activations1/robot_sin_cos_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[52]:
```



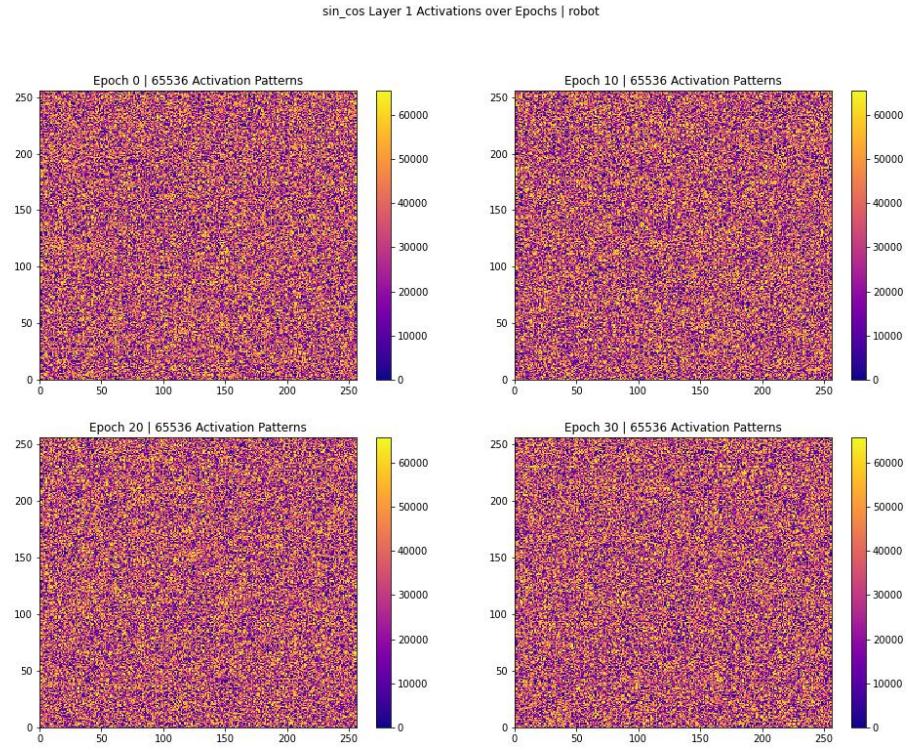
```
[53]: filename = 'experiments/activations2/robot_sin_cos_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[53]:
```



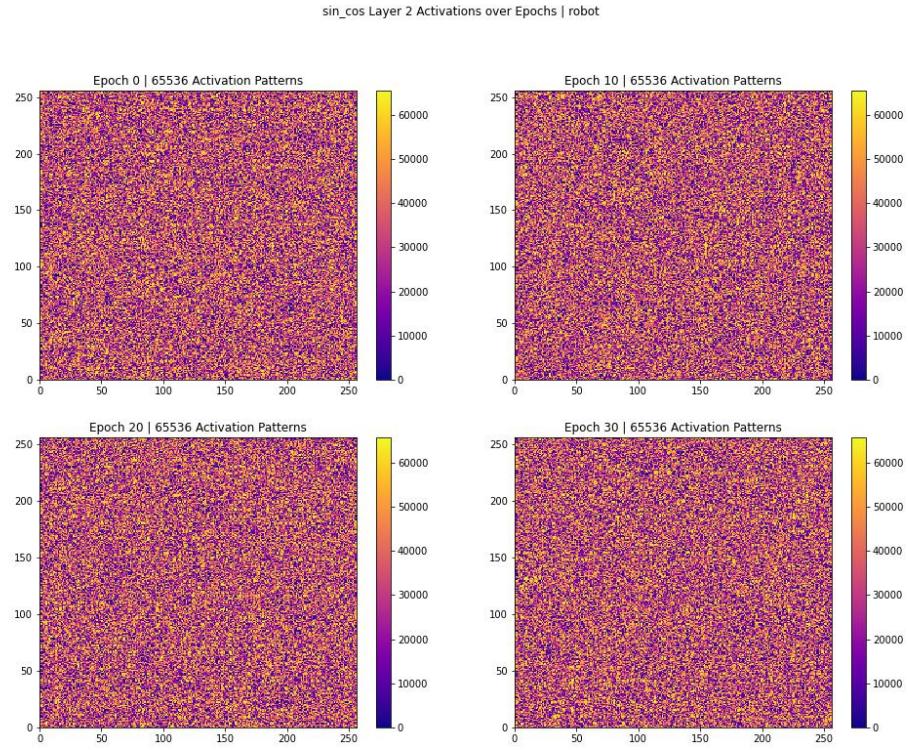
```
[54]: filename = 'experiments/activations1/robot_sin_cos_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[54]:
```



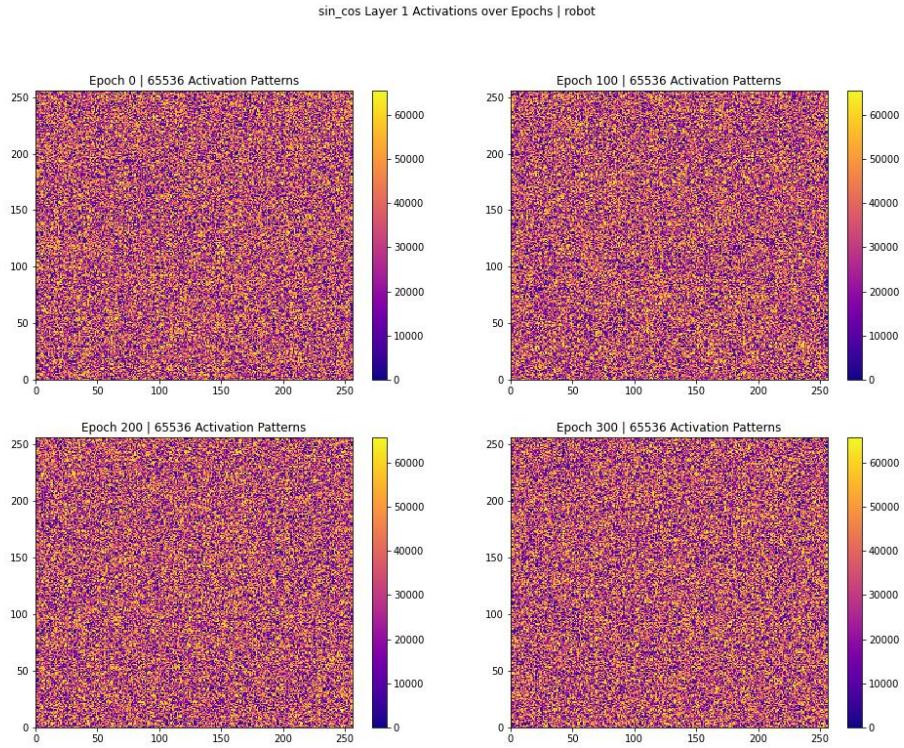
```
[55]: filename = 'experiments/activations2/robot_sin_cos_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[55]:
```



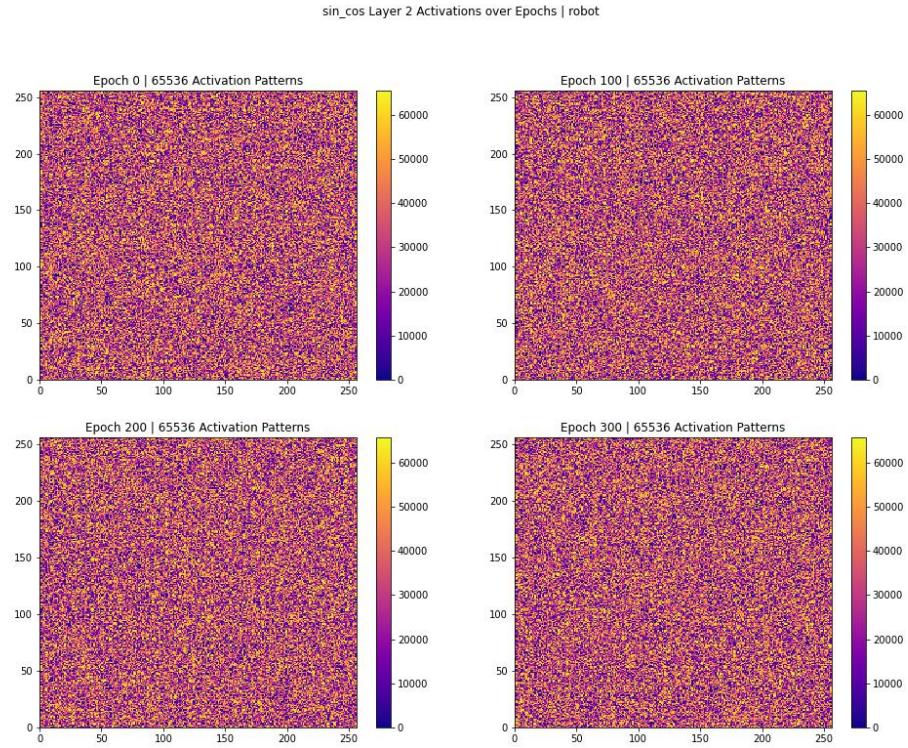
```
[56]: filename = 'experiments/activations1/robot_sin_cos_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[56]:
```



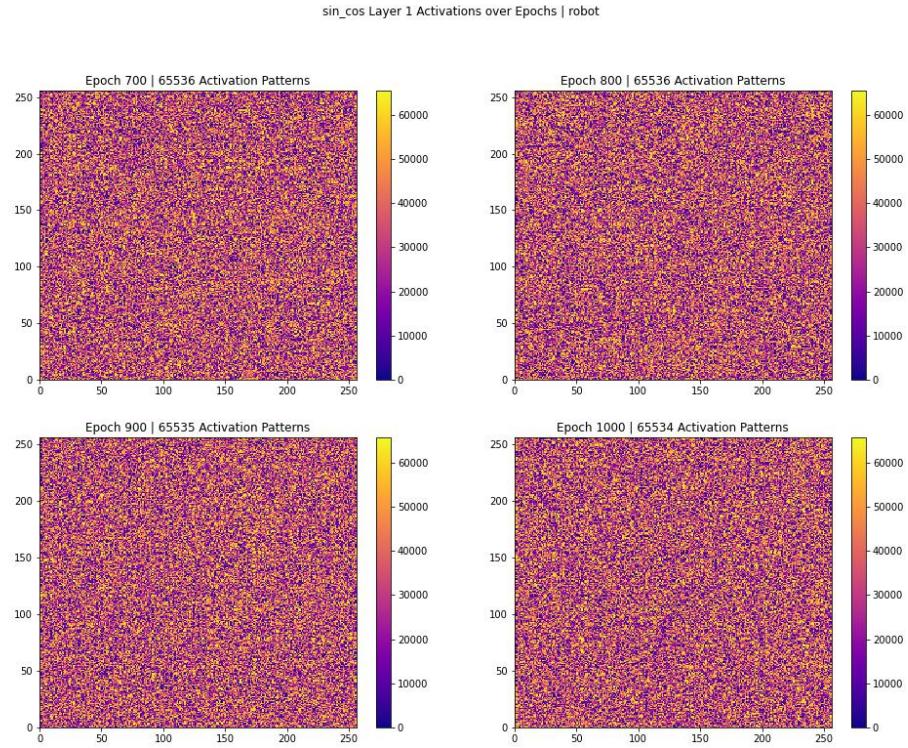
```
[57]: filename = 'experiments/activations2/robot_sin_cos_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[57]:
```



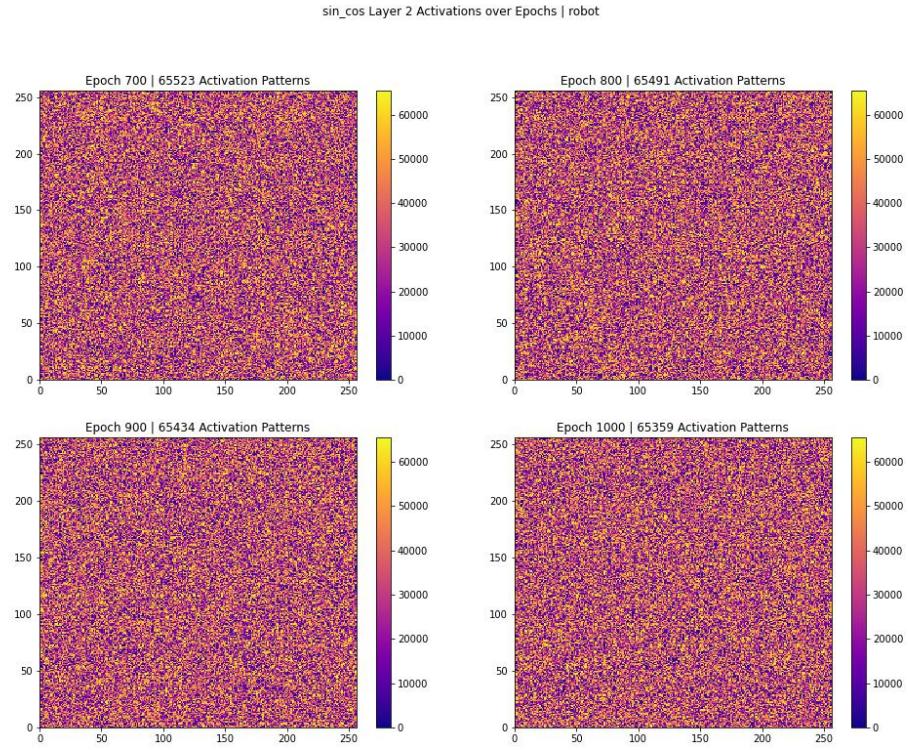
```
[58]: filename = 'experiments/activations1/robot_sin_cos_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[58]:
```



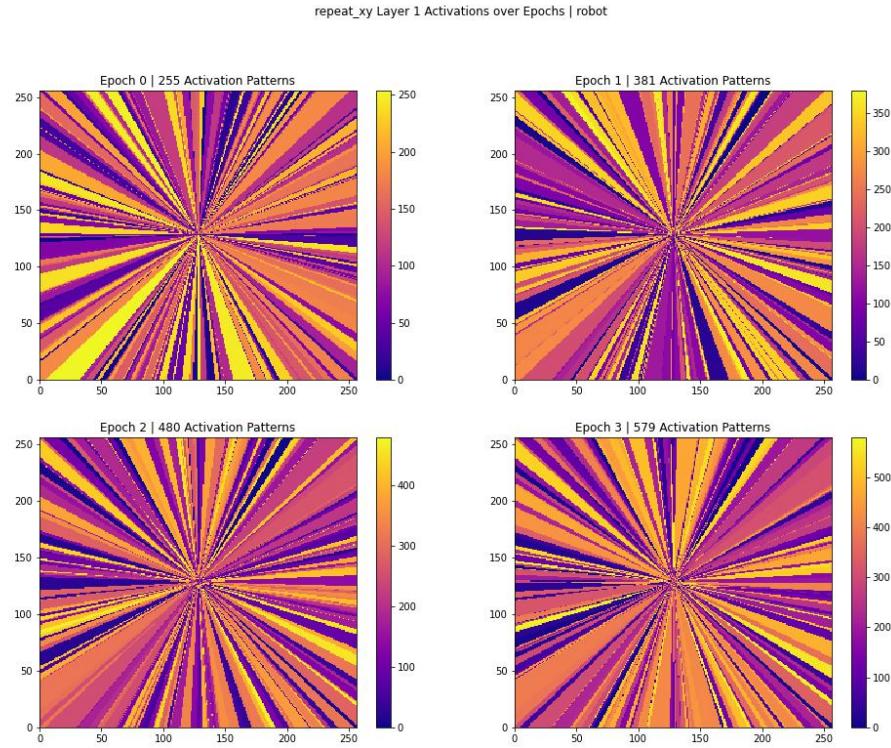
```
[59]: filename = 'experiments/activations2/robot_sin_cos_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[59]:
```



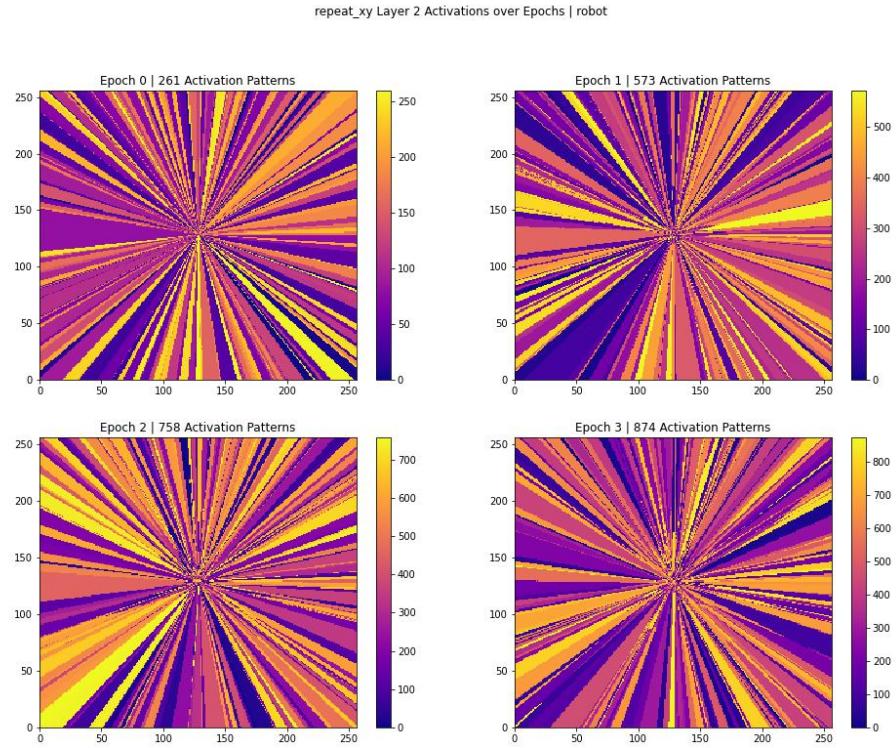
```
[60]: filename = 'experiments/activations1/robot_repeat_xy_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[60]:
```



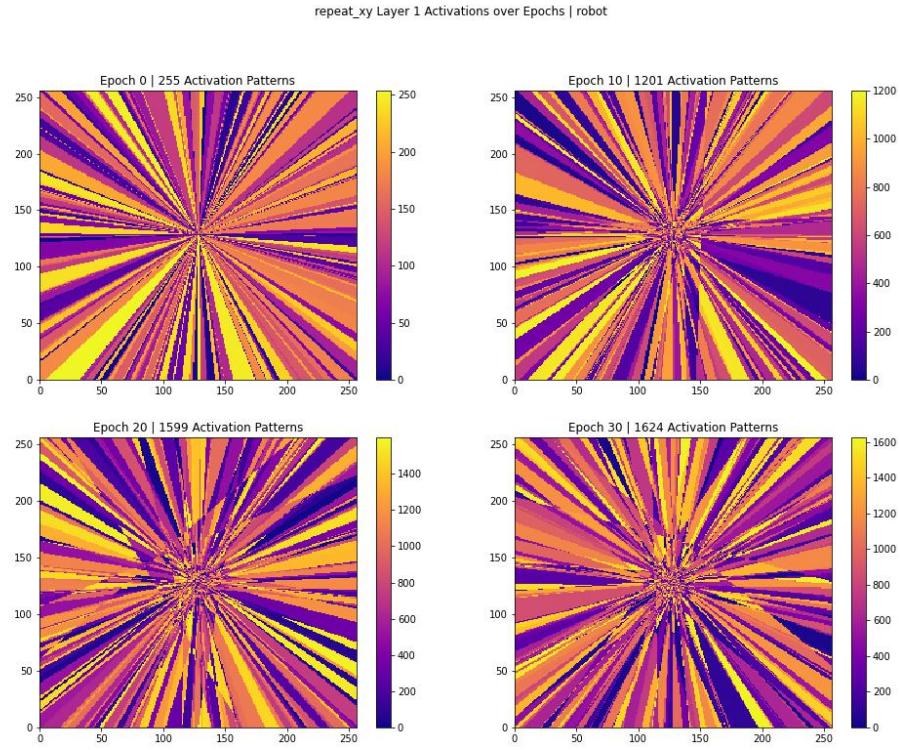
```
[61]: filename = 'experiments/activations2/robot_repeat_xy_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[61]:
```



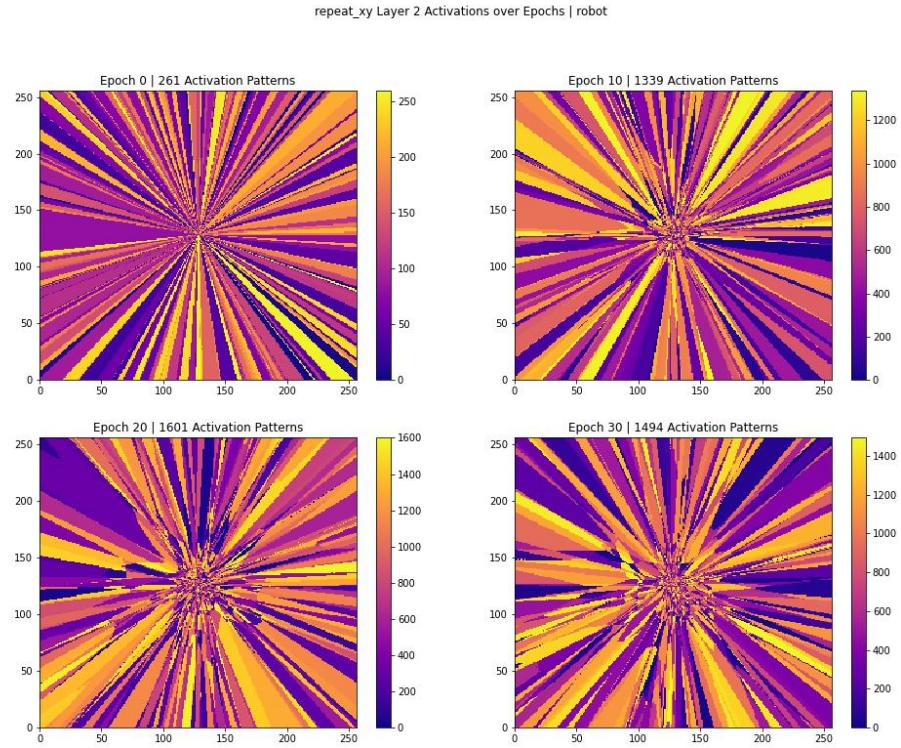
```
[62]: filename = 'experiments/activations1/robot_repeat_xy_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[62]:
```



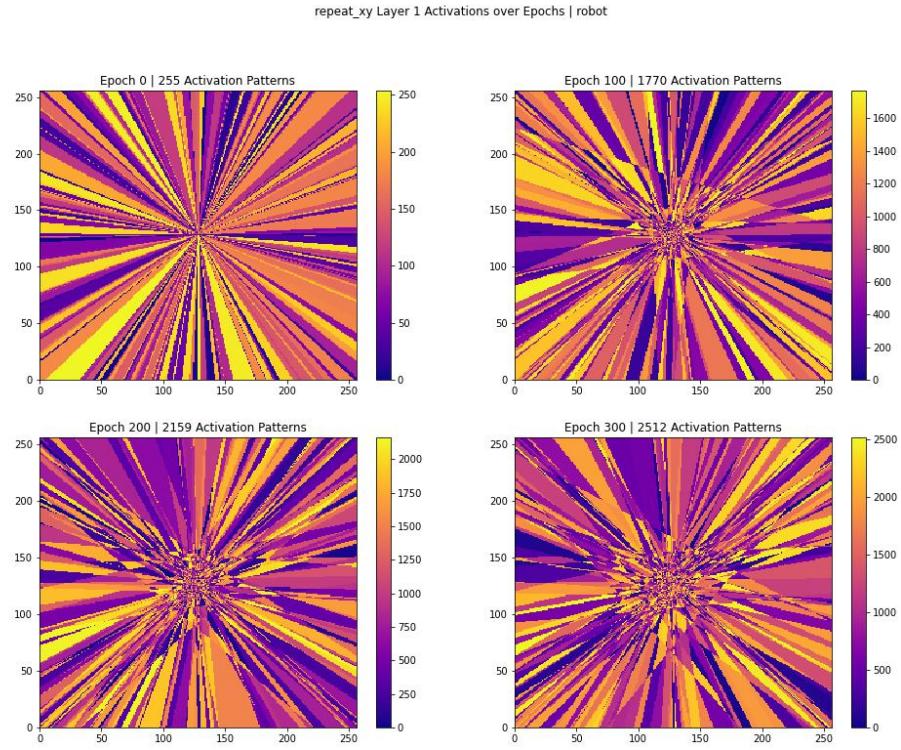
```
[63]: filename = 'experiments/activations2/robot_repeat_xy_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[63]:
```



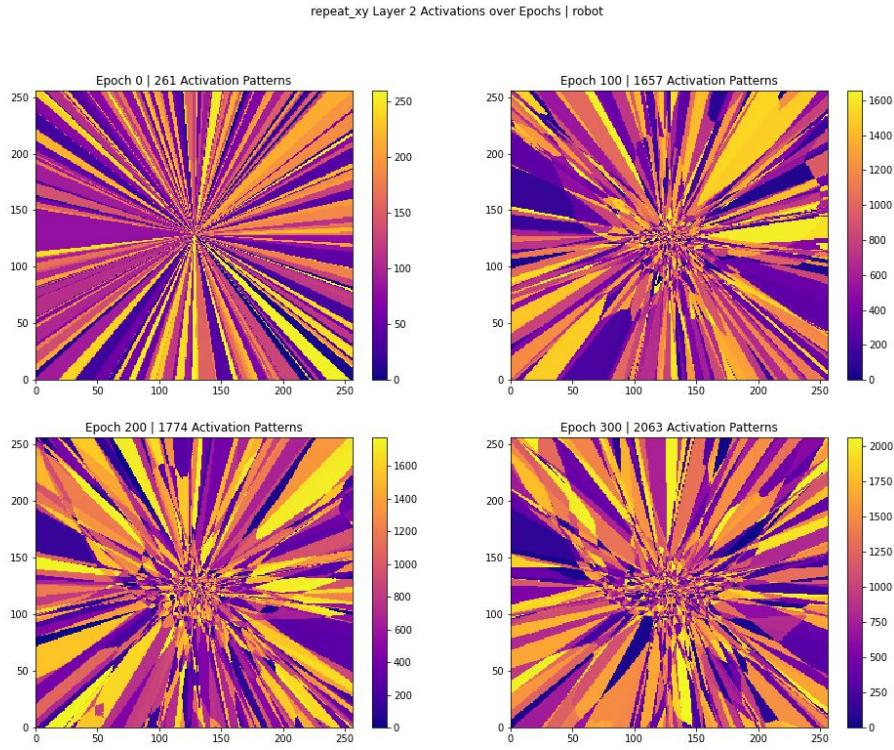
```
[64]: filename = 'experiments/activations1/robot_repeat_xy_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[64]:
```



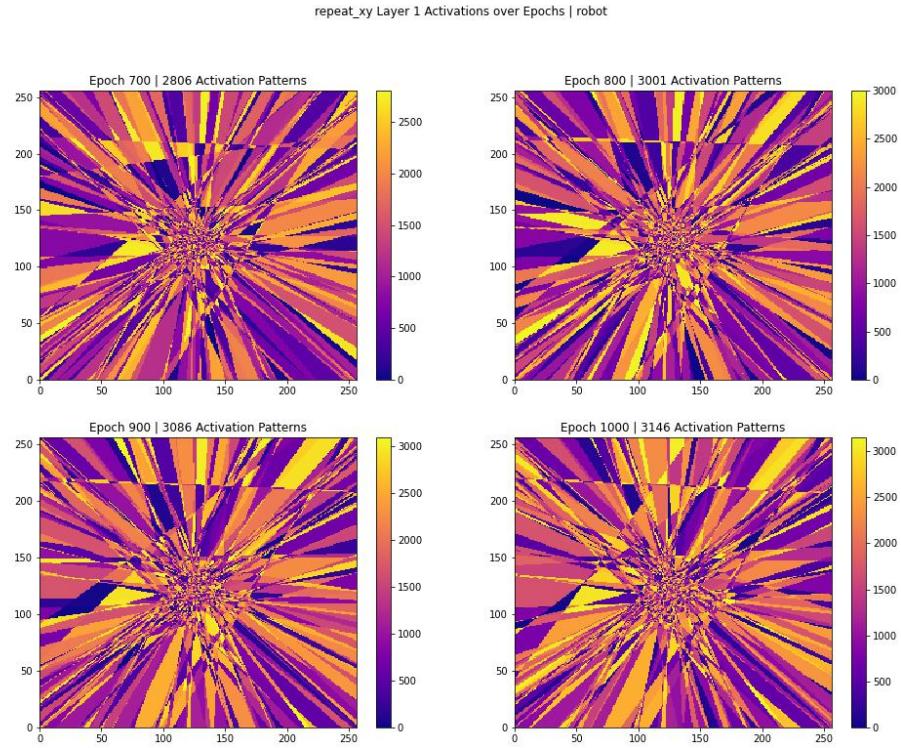
```
[65]: filename = 'experiments/activations2/robot_repeat_xy_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[65]:
```



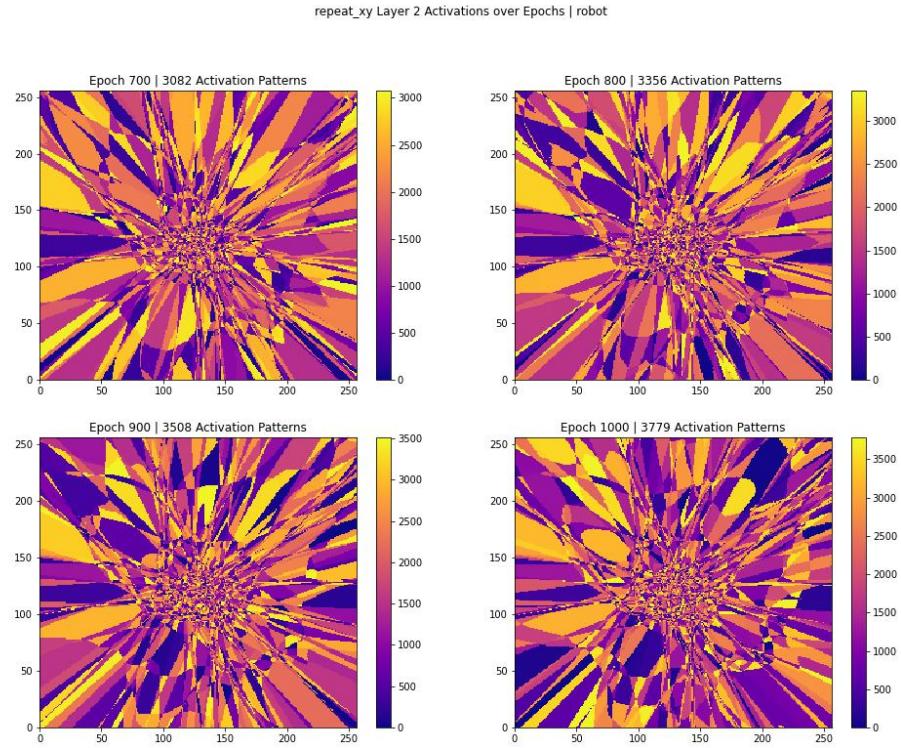
```
[66]: filename = 'experiments/activations1/robot_repeat_xy_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[66]:
```



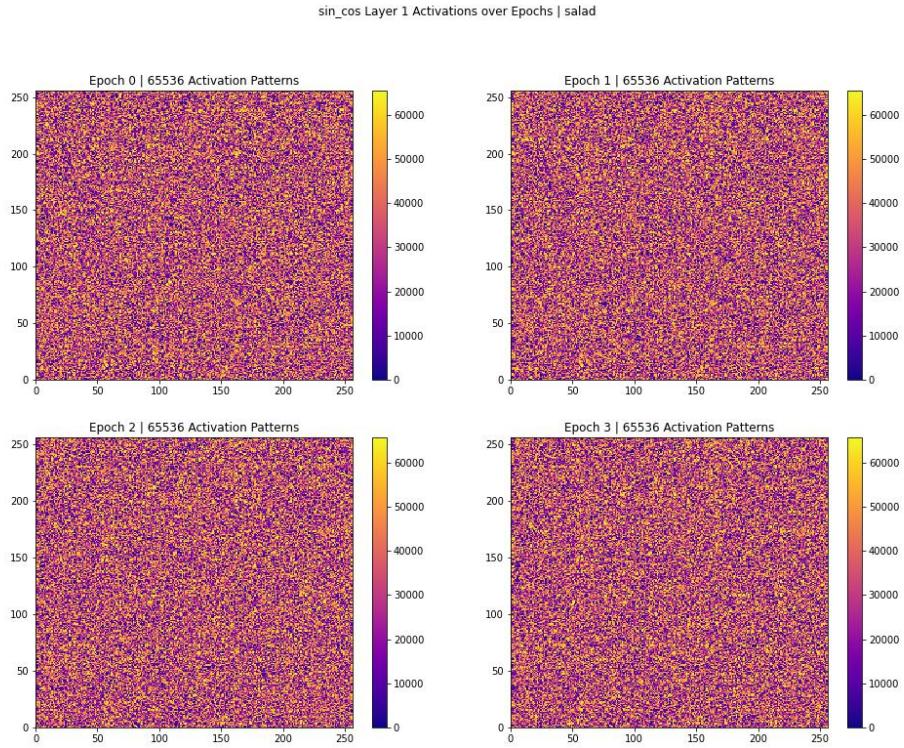
```
[67]: filename = 'experiments/activations2/robot_repeat_xy_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[67]:
```



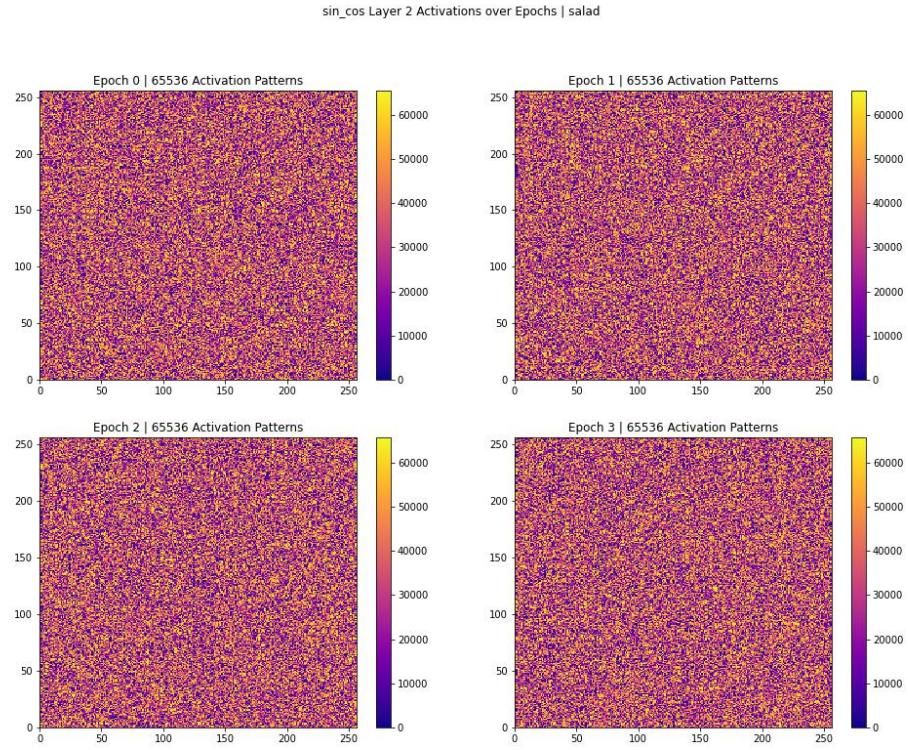
```
[68]: filename = 'experiments/activations1/salad_sin_cos_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[68]:
```



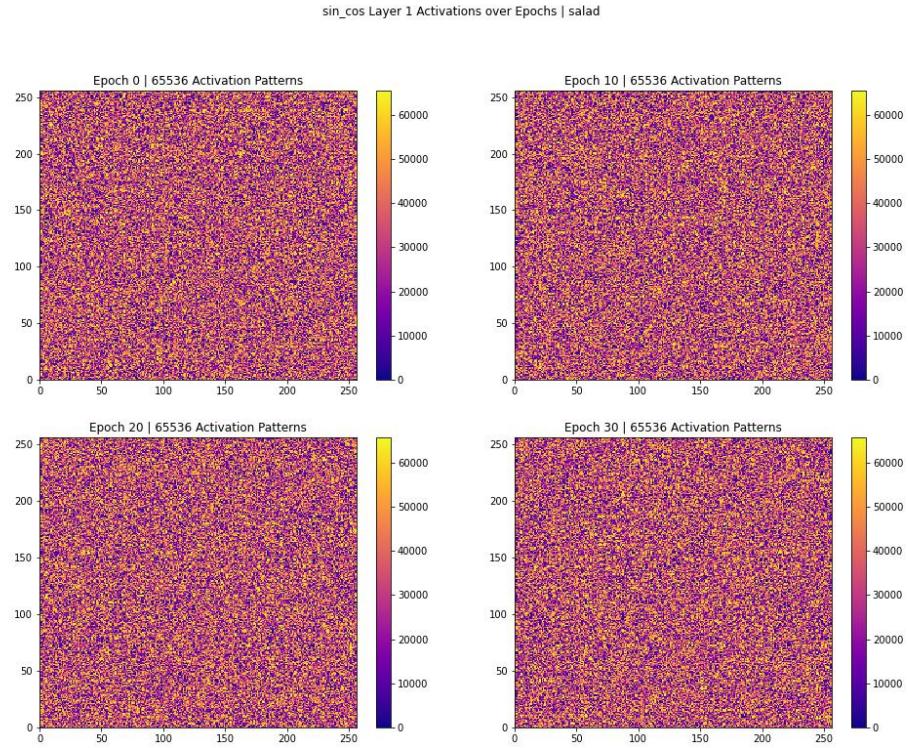
```
[69]: filename = 'experiments/activations2/salad_sin_cos_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[69]:
```



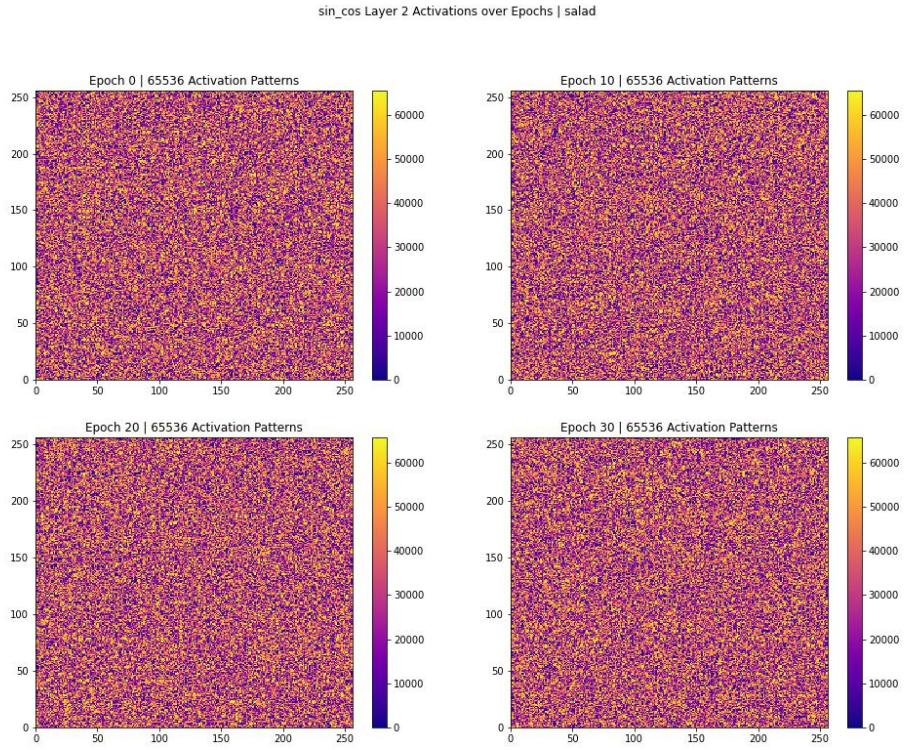
```
[70]: filename = 'experiments/activations1/salad_sin_cos_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[70]:
```



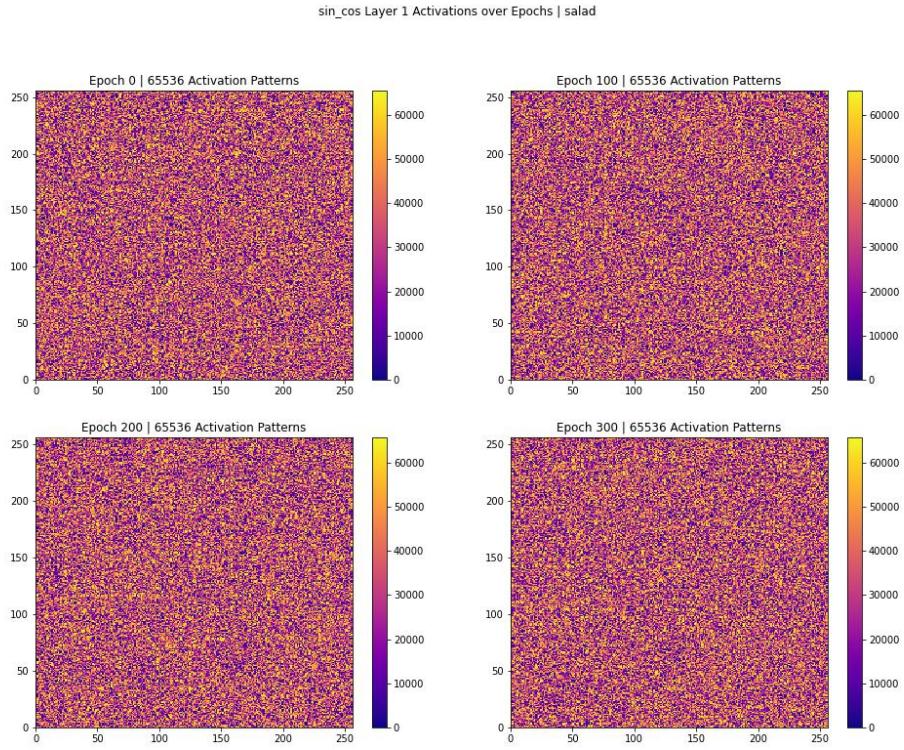
```
[71]: filename = 'experiments/activations2/salad_sin_cos_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[71]:
```



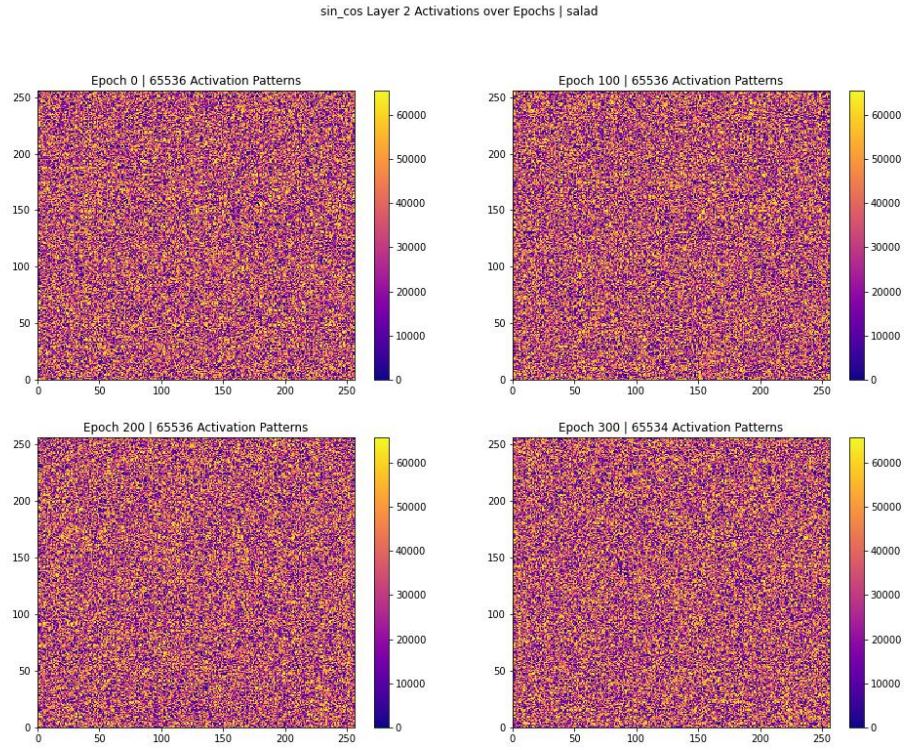
```
[72]: filename = 'experiments/activations1/salad_sin_cos_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[72]:
```



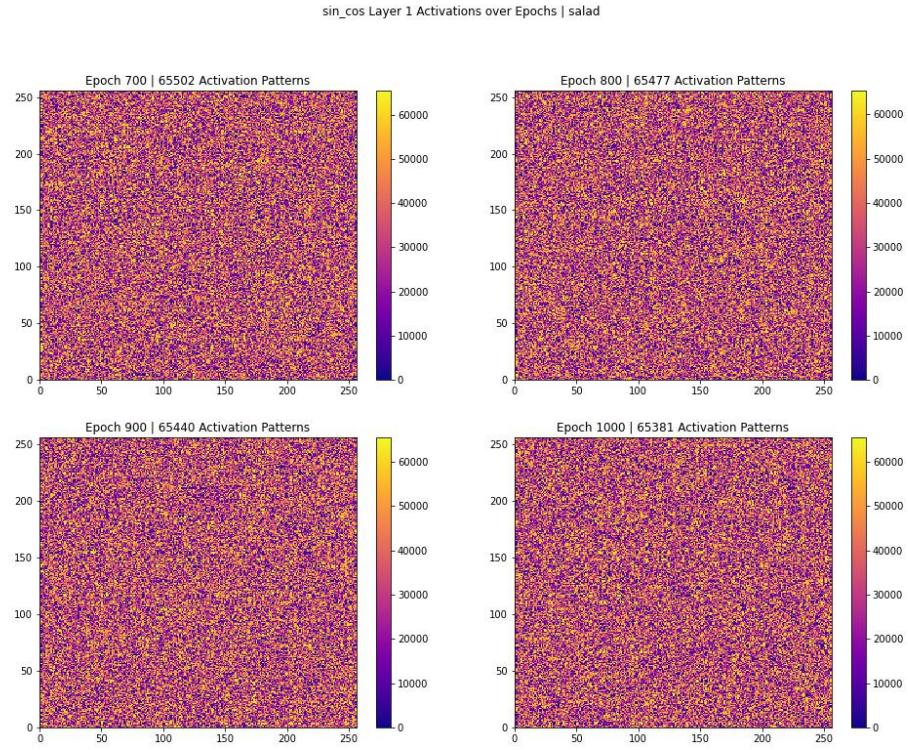
```
[73]: filename = 'experiments/activations2/salad_sin_cos_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[73]:
```



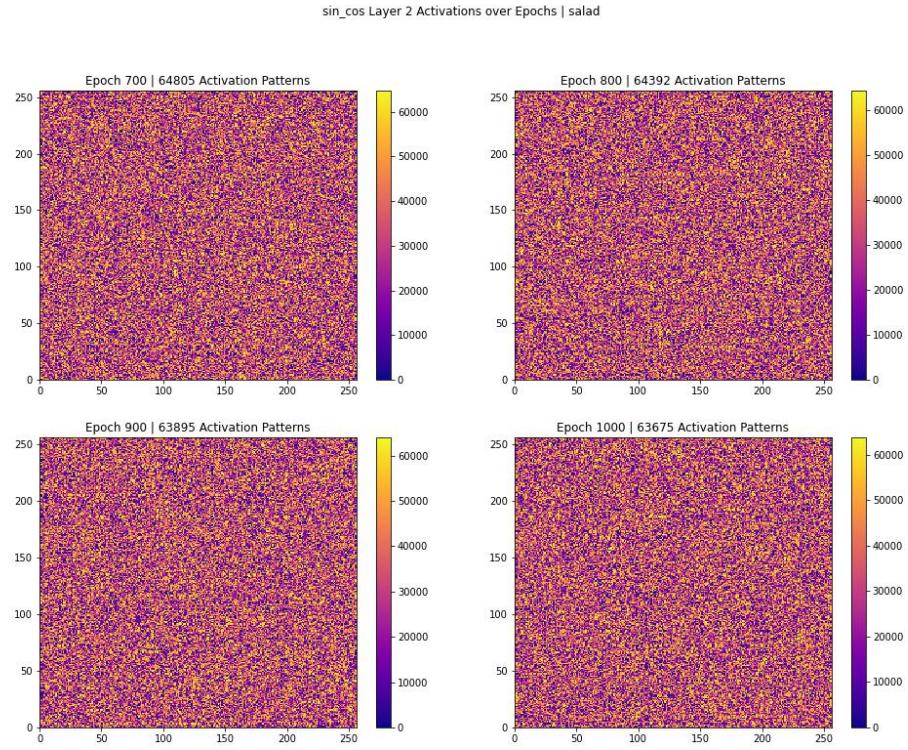
```
[74]: filename = 'experiments/activations1/salad_sin_cos_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[74]:
```



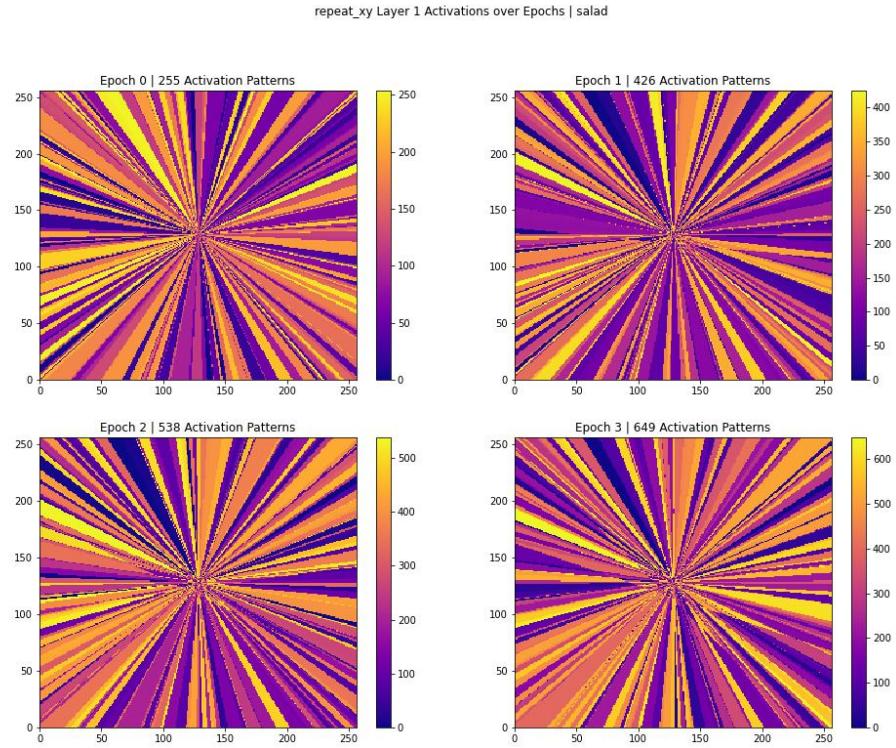
```
[75]: filename = 'experiments/activations2/salad_sin_cos_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[75]:
```



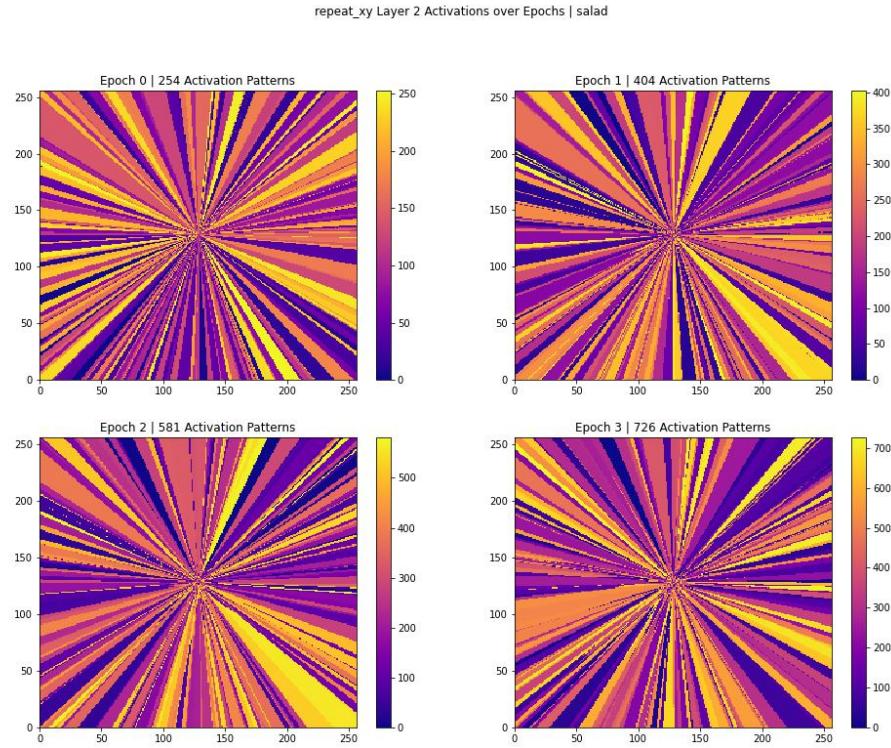
```
[76]: filename = 'experiments/activations1/salad_repeat_xy_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[76]:
```



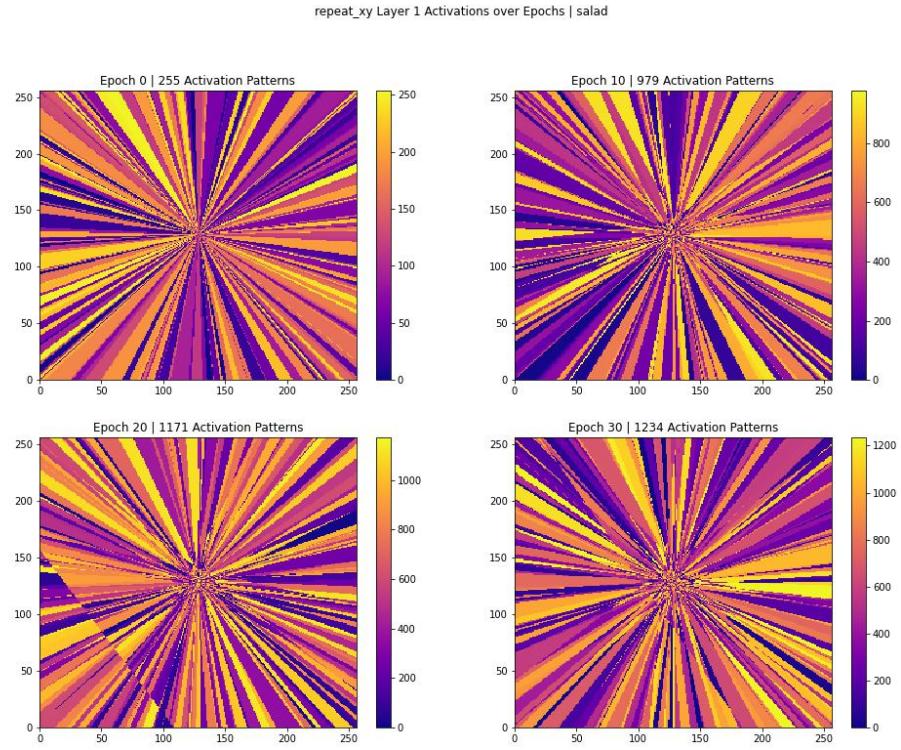
```
[77]: filename = 'experiments/activations2/salad_repeat_xy_0_1_2_3.jpg'  
Image(filename=filename)
```

```
[77]:
```



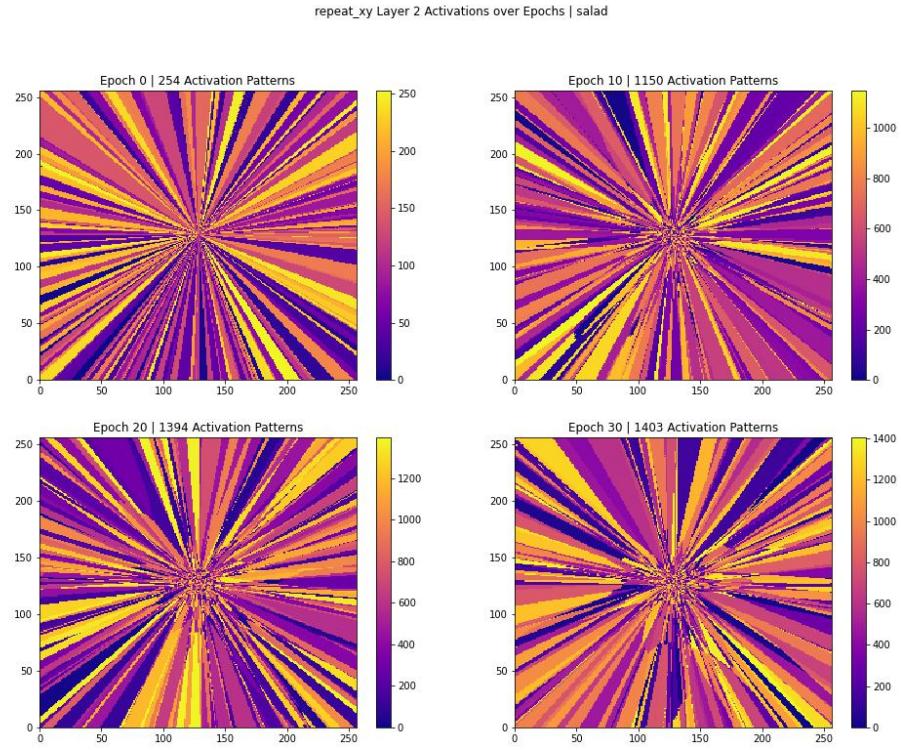
```
[78]: filename = 'experiments/activations1/salad_repeat_xy_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[78]:
```



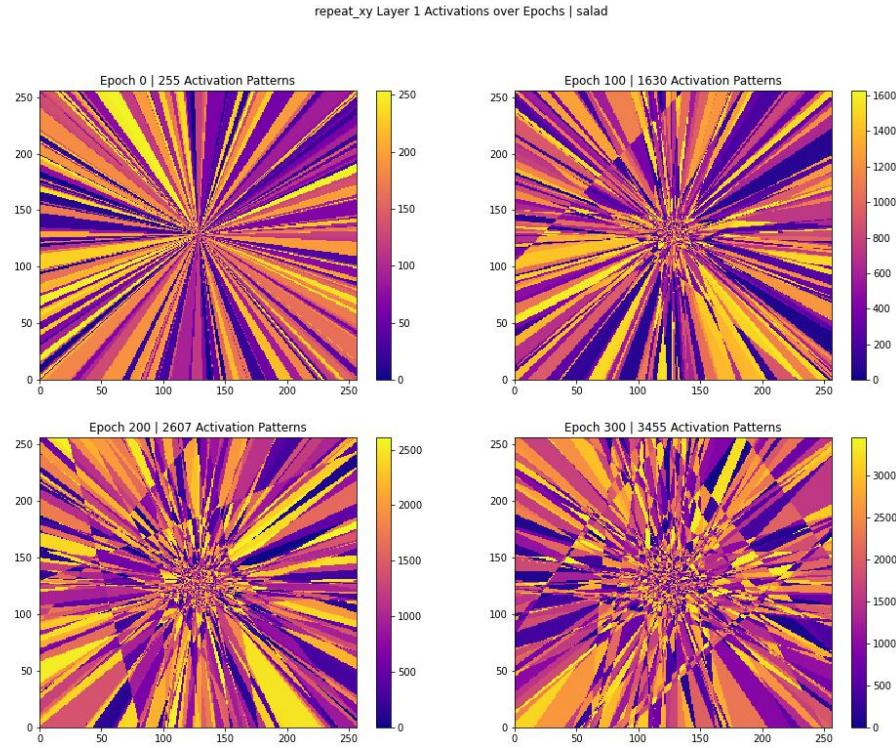
```
[79]: filename = 'experiments/activations2/salad_repeat_xy_0_10_20_30.jpg'  
Image(filename=filename)
```

```
[79]:
```



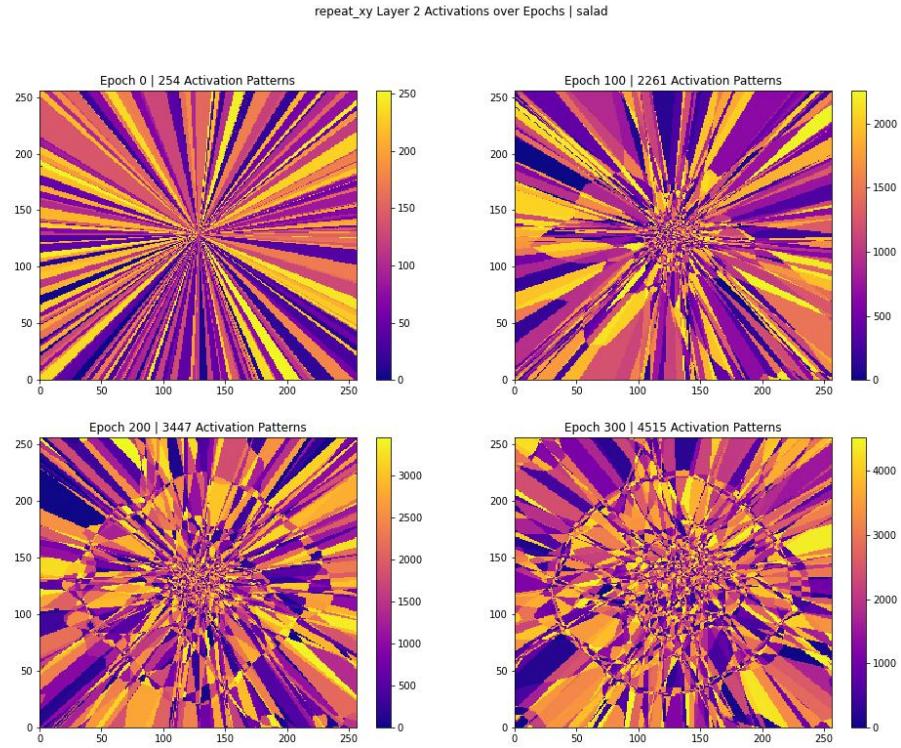
```
[80]: filename = 'experiments/activations1/salad_repeat_xy_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[80]:
```



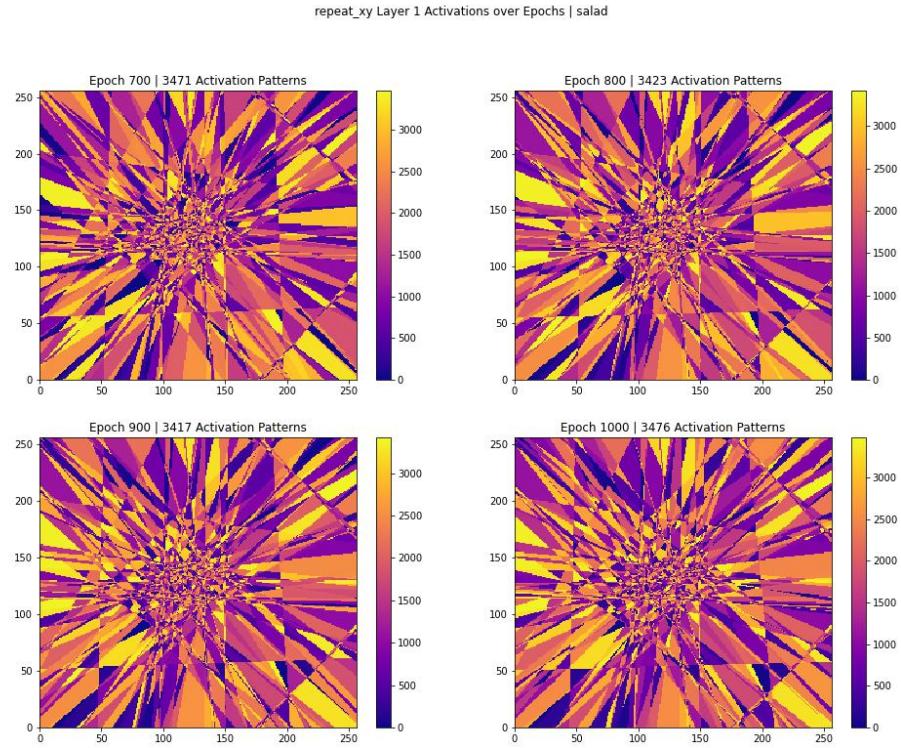
```
[81]: filename = 'experiments/activations2/salad_repeat_xy_0_100_200_300.jpg'  
Image(filename=filename)
```

```
[81]:
```



```
[82]: filename = 'experiments/activations1/salad_repeat_xy_700_800_900_1000.jpg'  
Image(filename=filename)
```

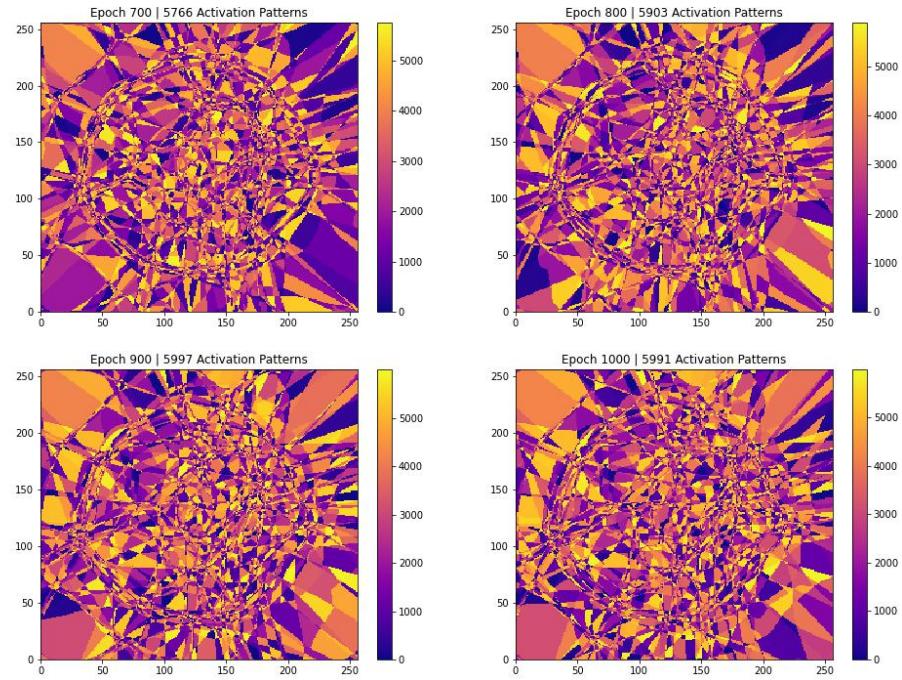
```
[82]:
```



```
[83]: filename = 'experiments/activations2/salad_repeat_xy_700_800_900_1000.jpg'  
Image(filename=filename)
```

```
[83]:
```

repeat_xy Layer 2 Activations over Epochs | salad



[]: