

Num of Filters	128		128			512		512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)						
Padding	valid		valid							
activation	relu		relu			relu		relu		softmax

Epoch 21/30

250/250 [=====] - 233s - loss: 0.4677 - acc: 0.7271 - val_loss: 0.4272 - val_acc: 0.7264

Test loss: 4.9933286047

Test accuracy 0.66375

Total params: 5,063,428

Trainable params: 5,063,428

Non-trainable params: 0

Num of Filters	128		250			512		512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)						
Padding	same		same							
activation	relu		relu			relu		relu		softmax

Epoch 30/30

250/250 [=====] - 248s - loss: 0.4430 - acc: 0.7479 - val_loss: 0.4323 - val_acc: 0.7445

Test loss: 4.93330636978

Test accuracy 0.659375

Total params: 9,623,422

Trainable params: 9,623,422

Non-trainable params: 0

Num of Filters	128		256			512		512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)						

Padding	valid		valid						
activation	relu		relu			relu		relu	softmax

Epoch 26/30

250/250 [=====] - 231s - loss: 0.4266 - acc: 0.7533 - val_loss: 0.4128 - val_acc: 0.7457

Test loss: 4.32757368922

Test accuracy 0.68

Total params: 7,881,604

Trainable params: 7,881,604

Non-trainable params: 0

Num of Filters	128		256			512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)				
Padding	valid		valid					
activation	relu		relu			relu		softmax

Epoch 18/30

250/250 [=====] - 229s - loss: 0.4214 - acc: 0.7586 - val_loss: 0.4059 - val_acc: 0.7485

Test loss: 5.06435893536

Test accuracy 0.660625

Total params: 7,618,948

Trainable params: 7,618,948

Non-trainable params: 0

adamax = Adamax(lr=0.003, beta_1=0.9, beta_2=0.999, epsilon=1e-08, decay=0.0)

Num of Filters	128		256			512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)				
Padding	valid		valid					
activation	relu		relu			relu		softmax

Epoch 23/30

250/250 [=====] - 241s - loss: 0.3806 - acc: 0.7873 - val_loss: 0.3871 - val_acc: 0.7597

Test loss: 4.85898687363

Test accuracy 0.679375

Total params: 7,881,604

Trainable params: 7,881,604

Non-trainable params: 0

adamax = Adamax(lr=0.002, beta_1=0.9, beta_2=0.999, epsilon=1e-08, decay=0.0)

Num of Filters	64		128			512		512		512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()	Dropout (0.35)	Dense()	Dropout (0.35)	Dense()
Conv. Size	(3,3)	(3,3)	(3,3)	(3,3)								
Padding	valid		valid									
activation	relu		relu			relu		relu		relu		softmax

Epoch 38/50

250/250 [=====] - 233s - loss: 0.3891 - acc: 0.7868 - val_loss: 0.4481 - val_acc: 0.7453

Test loss: 5.97175711632

Test accuracy 0.6175

Total params: 67,712,388

Trainable params: 67,712,388

Non-trainable params: 0

adamax = Adamax(lr=0.002, beta_1=0.9, beta_2=0.999, epsilon=1e-08, decay=0.0)

Num of Filters	64		128			512		512		512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()	Dropout (0.35)	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)								
Padding	valid		valid									
activation	relu		relu			relu		relu		relu		softmax

Epoch 23/50

250/250 [=====] - 220s - loss: 0.3856 - acc: 0.7742 - val_loss: 0.3724 - val_acc: 0.7694

Test loss: 4.66581215262

Test accuracy 0.683125

Total params: 2,288,004

Trainable params: 2,288,004

Non-trainable params: 0

adamax = Adamax(lr=0.001, beta_1=0.9, beta_2=0.999, epsilon=1e-08, decay=0.0) #prev 0.002

Num of Filters	64		128			512		512		512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()	Dropout (0.35)	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)								
Padding	valid		valid									
activation	relu		relu			relu		relu		relu		softmax

Epoch 30/50

250/250 [=====] - 233s - loss: 0.3466 - acc: 0.8096 - val_loss: 0.3560 - val_acc: 0.7869

Test loss: 4.95138476849

Test accuracy 0.673125

Total params: 4,041,156

Trainable params: 4,041,156

Non-trainable params: 0

adam = Adam(lr=0.001, beta_1=0.9, beta_2=0.999, epsilon=1e-08, decay=0.0)

Num of Filters	128		256			512		512		512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()	Dropout (0.35)	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)								
Padding	valid		valid									
activation	relu		relu			relu		relu		relu		softmax

Epoch 27/50

250/250 [=====] - 239s - loss: 0.5080 - acc: 0.7074 - val_loss: 0.5287 - val_acc: 0.7019

Test loss: 3.69877340741

Test accuracy 0.656875

Total params: 8,145,284

Trainable params: 8,144,772

Non-trainable params: 512

adam = Adam(lr=0.0005, beta_1=0.9, beta_2=0.999, epsilon=1e-08, decay=0.0) #previously 0.001

Num of Filters	128		256			512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)				
Padding	valid		valid					
activation	relu		relu			relu		softmax

Epoch 30/50

250/250 [=====] - 237s - loss: 0.3468 - acc: 0.8114 - val_loss: 0.3741 - val_acc: 0.7847

Test loss: 4.91565843821

Test accuracy 0.68625

Total params: 7,618,948

Trainable params: 7,618,948

Non-trainable params: 0

adamax = Adamax(lr=0.002, beta_1=0.9, beta_2=0.999, epsilon=1e-08, decay=0.0)

Num of Filters	128		256			512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)				
Padding	valid		valid					
activation	relu		relu			relu		softmax

Epoch 27/50

250/250 [=====] - 238s - loss: 0.3517 - acc: 0.8049 - val_loss: 0.3720 - val_acc: 0.7815

Test loss: 4.88308211803

Test accuracy 0.6825

Total params: 7,618,948

Trainable params: 7,618,948

Non-trainable params: 0

adadelat = Adadelat(lr=1.0, rho=0.95, epsilon=1e-08, decay=0.0)

Num of Filters	128		256			512		4
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Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)				
Padding	valid		valid					
activation	relu		relu			relu		softmax

Epoch 30/30

250/250 [=====] - 249s - loss: 0.3486 - acc: 0.8160 - val_loss: 0.3526 - val_acc: 0.7875

Test loss: 5.13014283419

Test accuracy 0.67125

Total params: 7,881,604

Trainable params: 7,881,604

Non-trainable params: 0

adam = Adam(lr=0.0005, beta_1=0.9, beta_2=0.999, epsilon=1e-08, decay=0.0) #previously 0.001

Num of Filters	64		256			512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)				
Padding	valid		valid					
activation	relu		relu			relu		softmax

Epoch 23/50

250/250 [=====] - 245s - loss: 0.3473 - acc: 0.8060 - val_loss: 0.3770 - val_acc: 0.7841

Test loss: 4.94794062287

Test accuracy 0.68625

Total params: 7,022,148

Trainable params: 7,022,148

Non-trainable params: 0

adam = Adam(lr=0.0005, beta_1=0.9, beta_2=0.999, epsilon=1e-08, decay=0.0) #previously 0.001

Num of Filters	64		256			256		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()

Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)				
Padding	valid		valid					
activation	relu		relu			relu		softmax

250/250 [=====] - 246s - loss: 0.3944 - acc: 0.7871 - val_loss: 0.4318 - val_acc: 0.7507

Test loss: 5.17871149302

Test accuracy 0.658125

adam = Adam(lr=0.0005, beta_1=0.9, beta_2=0.999, epsilon=1e-08, decay=0.0) #previously 0.001

use adamax, adelta

Num of Filters	64		256			256		256		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()	Dropout (0.25)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)						
Padding	valid		valid							
activation	relu		relu			relu		relu		softmax

Epoch 24/50

250/250 [=====] - 235s - loss: 0.3744 - acc: 0.7946 - val_loss: 0.3736 - val_acc: 0.7750

Test loss: 4.62821881056

Test accuracy 0.6975

Total params: 3,875,396

Trainable params: 3,875,396

Non-trainable params: 0

adam = Adam(lr=0.0005, beta_1=0.9, beta_2=0.999, epsilon=1e-08, decay=0.0) #previously 0.001

Num of Filters	64		256			512		256		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout Gaussian (0.35)	Dense()	Dropout Gaussian (0.15)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)						
Padding	valid		valid							
activation	relu		relu			relu		relu		softmax

Epoch 26/50

250/250 [=====] - 252s - loss: 0.3698 - acc: 0.7959 - val_loss: 0.3750 - val_acc: 0.7695

Test loss: 4.73596389294

Test accuracy 0.685625

Total params: 7,152,452

Trainable params: 7,152,452

Non-trainable params: 0

Png_data 300 by 300 with preprocessing during training

adam = Adam(lr=0.001, beta_1=0.9, beta_2=0.999, epsilon=1e-08, decay=0.0) #previously 0.001

Num of Filters	64		128			512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)				
Padding	valid		valid					
activation	relu		relu			relu		softmax

Epoch 15/50

125/125 [=====] - 175s - loss: 0.3572 - acc: 0.8054 - val_loss: 0.4148 - val_acc: 0.7624

Test loss: 3.65027219772

Test accuracy 0.755

Total params: 3,515,844

Trainable params: 3,515,844

Non-trainable params: 0

Cnn_copy_sobel.py

Png_data 200 by 200 without preprocessing during training

adam = Adam(lr=0.001, beta_1=0.9, beta_2=0.999, epsilon=1e-08, decay=0.0) #previously 0.001

Num of Filters	64		128			512		512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)						
Padding	valid		valid							
activation	relu		relu			relu		relu		softmax

Epoch 15/50

208/207 [=====] - 52s - loss: 0.1825 - acc: 0.9340 - val_loss: 0.1791 - val_acc: 0.9248

Test loss: 1.07142833689

Test accuracy 0.932214765101

Total params: 1,615,812

Trainable params: 1,615,812

Non-trainable params: 0

Cnn_copy_sobel.py

Png_data 200 by 200 without preprocessing during training

adam = Adam(lr=0.001, beta_1=0.9, beta_2=0.999, epsilon=1e-08, decay=0.0) #previously 0.001

Num of Filters	64		128			512		512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(6,6)	(6,6)						
Padding	valid		valid							
activation	relu		relu			relu		relu		softmax

Epoch 19/50

208/207 [=====] - 52s - loss: 0.1613 - acc: 0.9393 - val_loss: 0.1440 - val_acc: 0.9431

Test loss: 0.796894465397

Test accuracy 0.94966442953

Total params: 1,615,812

Trainable params: 1,615,812

Non-trainable params: 0

Cnn_copy_sobel_test.py

Png_data 200 by 200 without preprocessing during training

Adadelata = Adadelata(lr=1.0, rho=0.95, epsilon=1e-08, decay=0.0)

Num of Filters	128		128			512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(3,3)	(3,3)				
Padding	valid		valid					

activation	relu		relu			relu		softmax
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Epoch 8/50

208/207 [=====] - 59s - loss: 0.1559 - acc: 0.9468 - val_loss: 0.1421 - val_acc: 0.9425

Test loss: 1.02644992199

Test accuracy 0.935570469799

Total params: 6,717,700

Trainable params: 6,717,700

Non-trainable params: 0

Cnn_copy_sobel_test.py

Png_data 200 by 200 without preprocessing during training

Adadelata = Adadelata(lr=1.0, rho=0.95, epsilon=1e-08, decay=0.0)

Num of Filters	64		128			512		4
Layer Type	CONV_2D	MAXPOOL	CONV_2D	MAXPOOL	Flatten()	Dense()	Dropout (0.35)	Dense()
Conv. Size	(6,6)	(6,6)	(3,3)	(3,3)				
Padding	valid		valid					
activation	relu		relu			relu		softmax