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```
clc; clear all; close all;
```

```
% This report contains the answers to questions posed in the  
Deliverable
```

```
%Each of the ROC curves shown below represent the performance of the  
neural
```

```
%network when being trained with the specified number of hidden  
neurons.
```

```
%Each emotion is represented by a class, as can be seen on each graph:
```

```
%(7=Angry, 1=Disgust, 2=Fear, 3=Happy, 4=Sad, 5=Surprise, 6=Neutral)
```

```
%What we are looking for is the ROC curve with the most classes
```

```
%located primarily in the upper left hand quadrant of the plot. This  
will
```

```
%indicate that the neural networks performance, with respect to each  
class, is good. It can be seen that the plot utilizing 250 hidden  
neurons
```

```
%shows the best ROC curve.
```

```
%The final ROC curve is the overall ROC curve for the neural network.
```

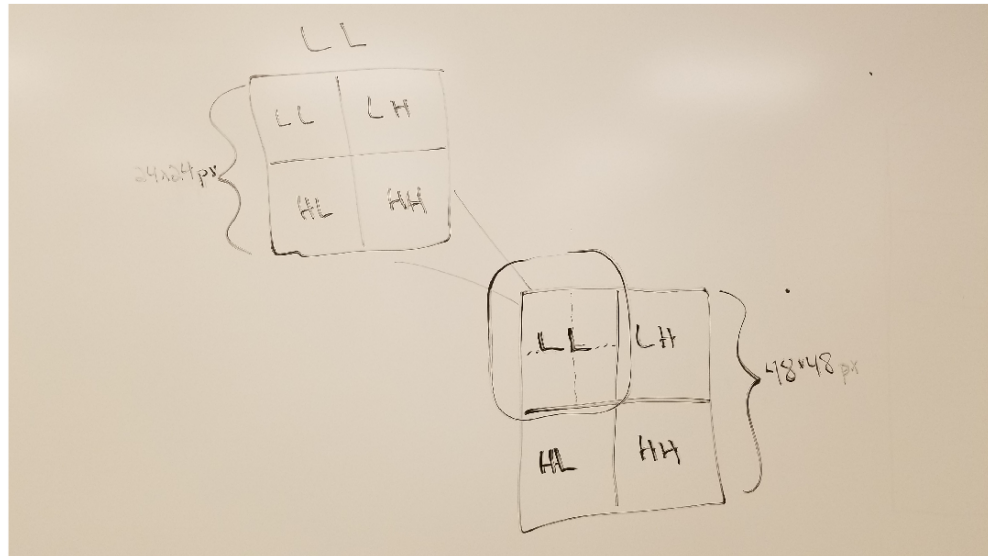
How we got our features.

```
% This figure shows what features we use. The LL of the LL using both  
% different methods
```

```
imds = imageDatastore({'pic.jpg'});  
img = readimage(imds,1);  
imshow(img)
```

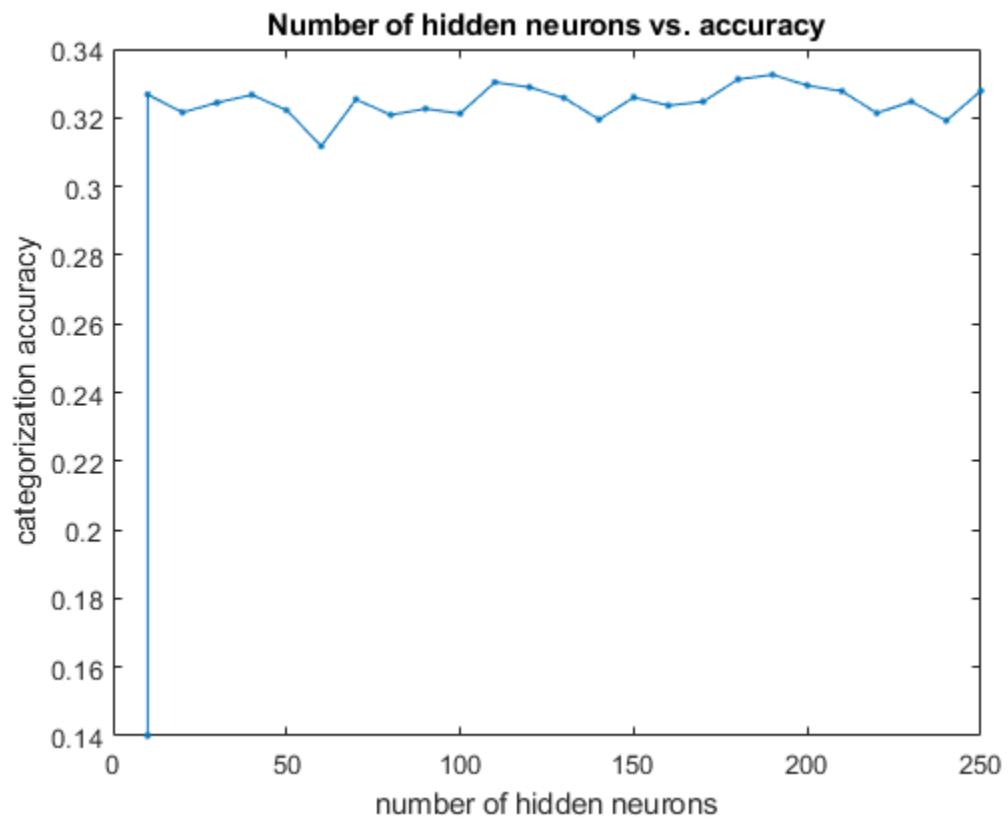
```
sweep = [10,10:10:250];
```

```
Warning: Image is too big to fit on screen; displaying at 33%
```



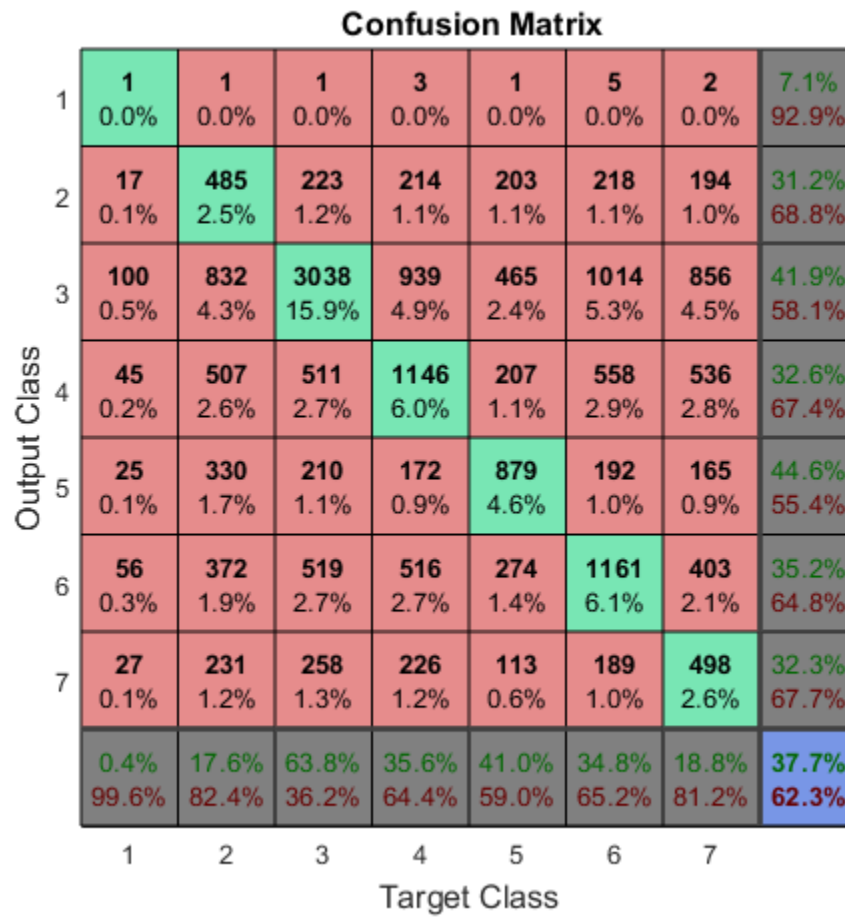
Coif

```
% Below is the accuracy of the sweep.  
openfig("../figSaves/1_SweepResult");
```



Confusion Matrix

```
openfig("../figSaves/ConfusionMatrix_1");
```

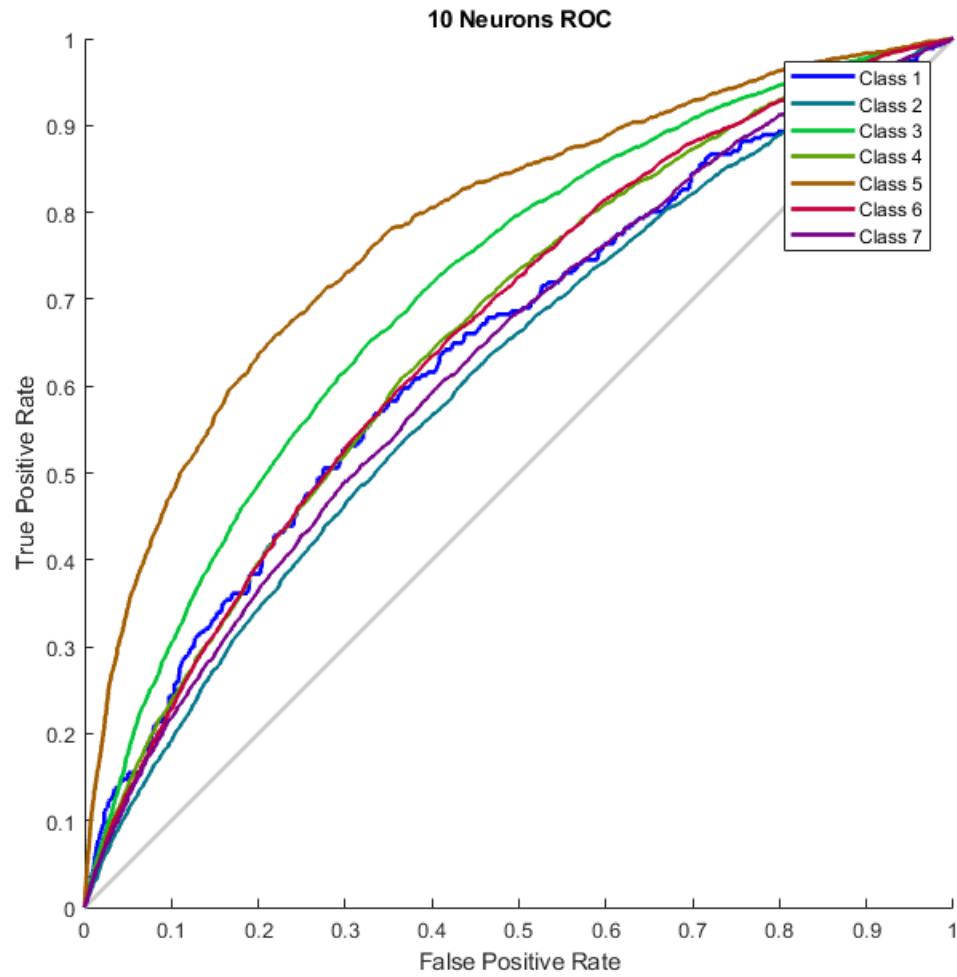


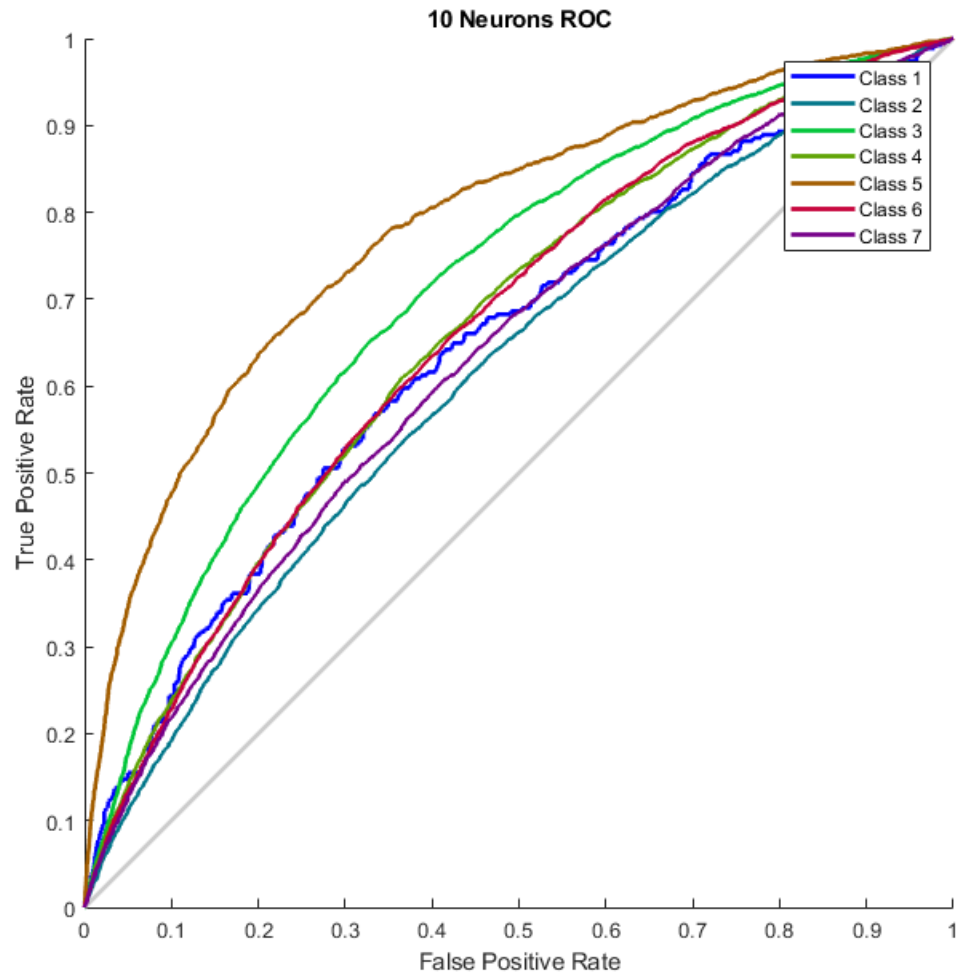
Coif: All ROC

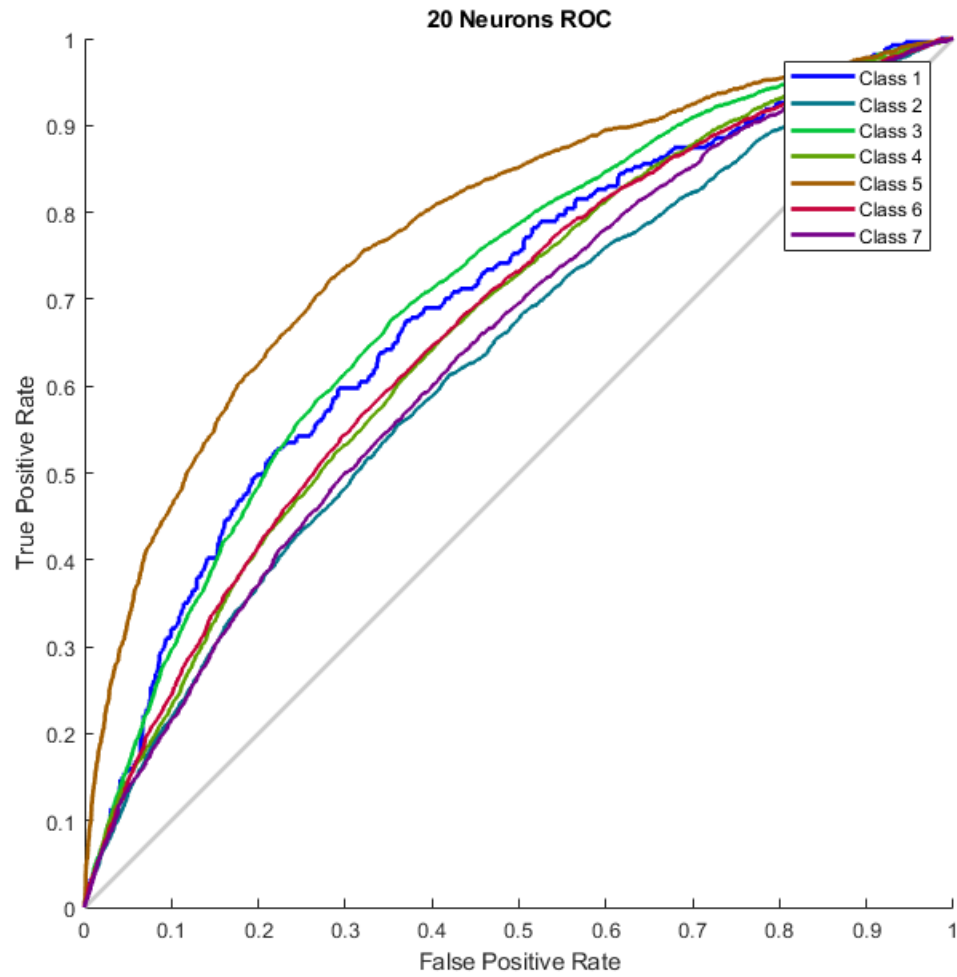
```
for i = 1:21
    formatSpec = "../figSaves/%dN%dRoc";
    savefigpath = sprintf(formatSpec,1,sweep(i));
    openfig(savefigpath);

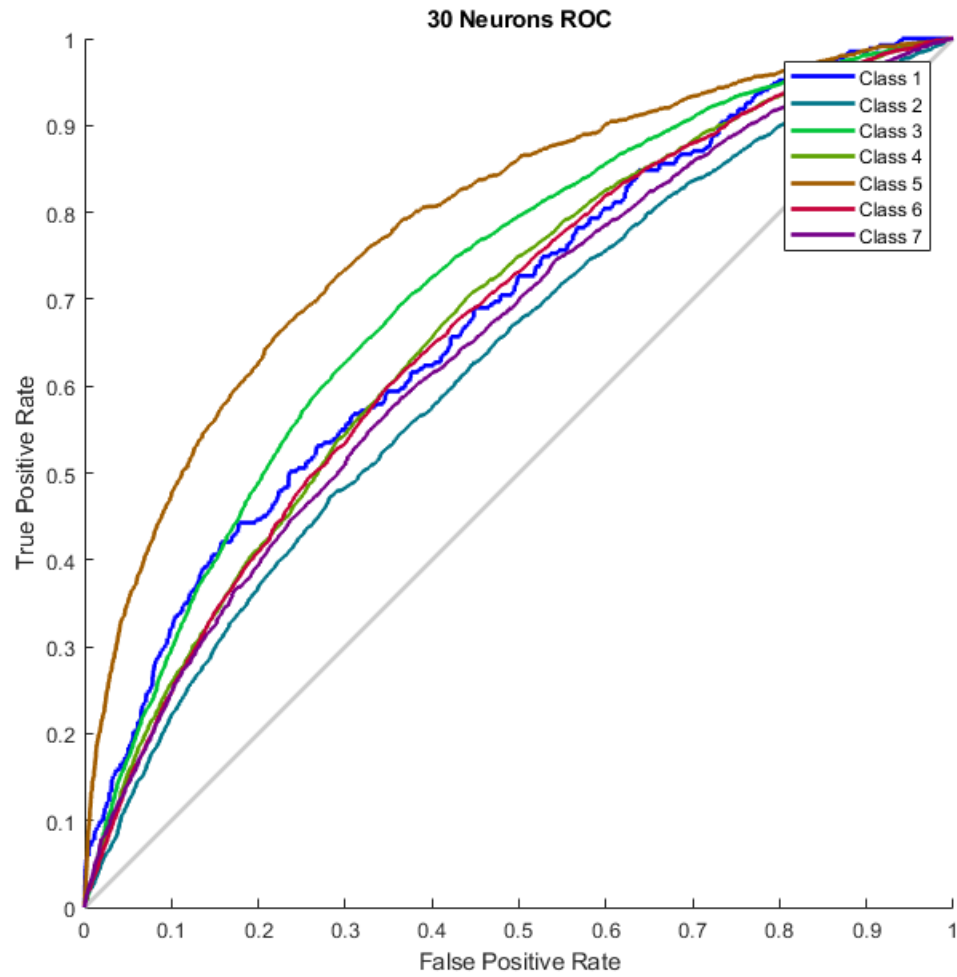
end

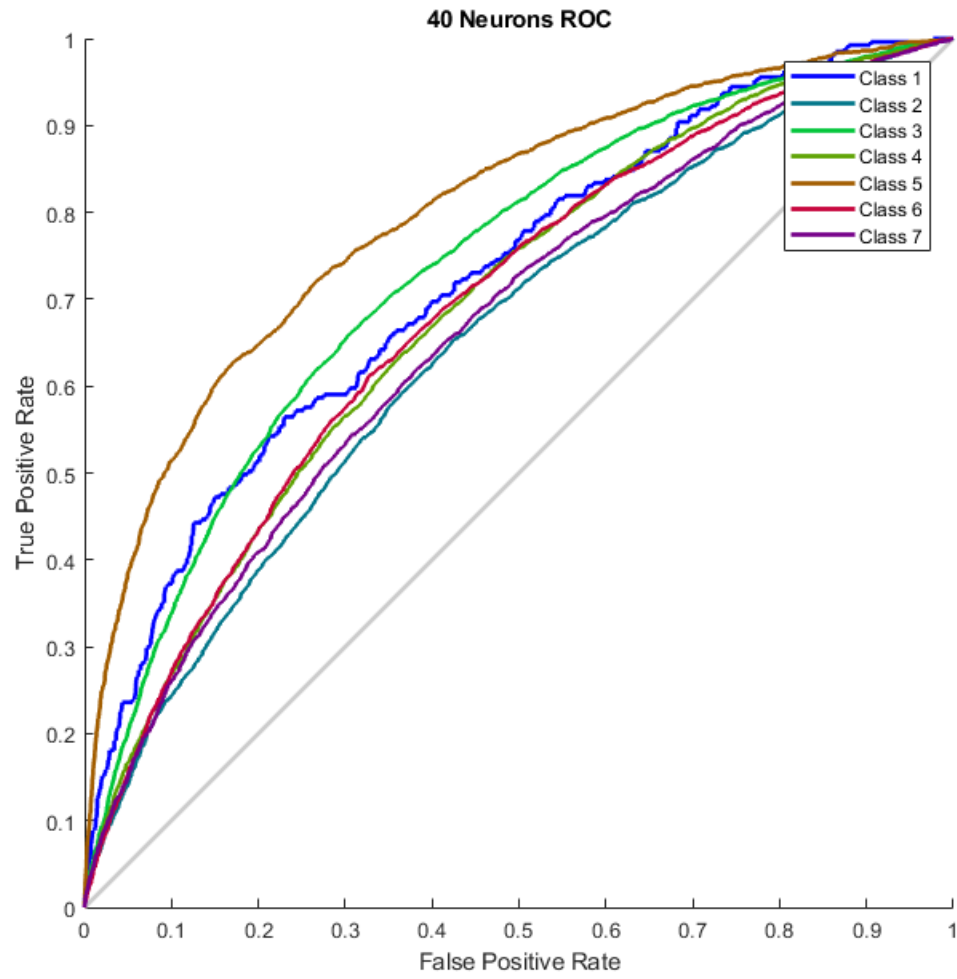
sweep = [10,10:10:250];
```

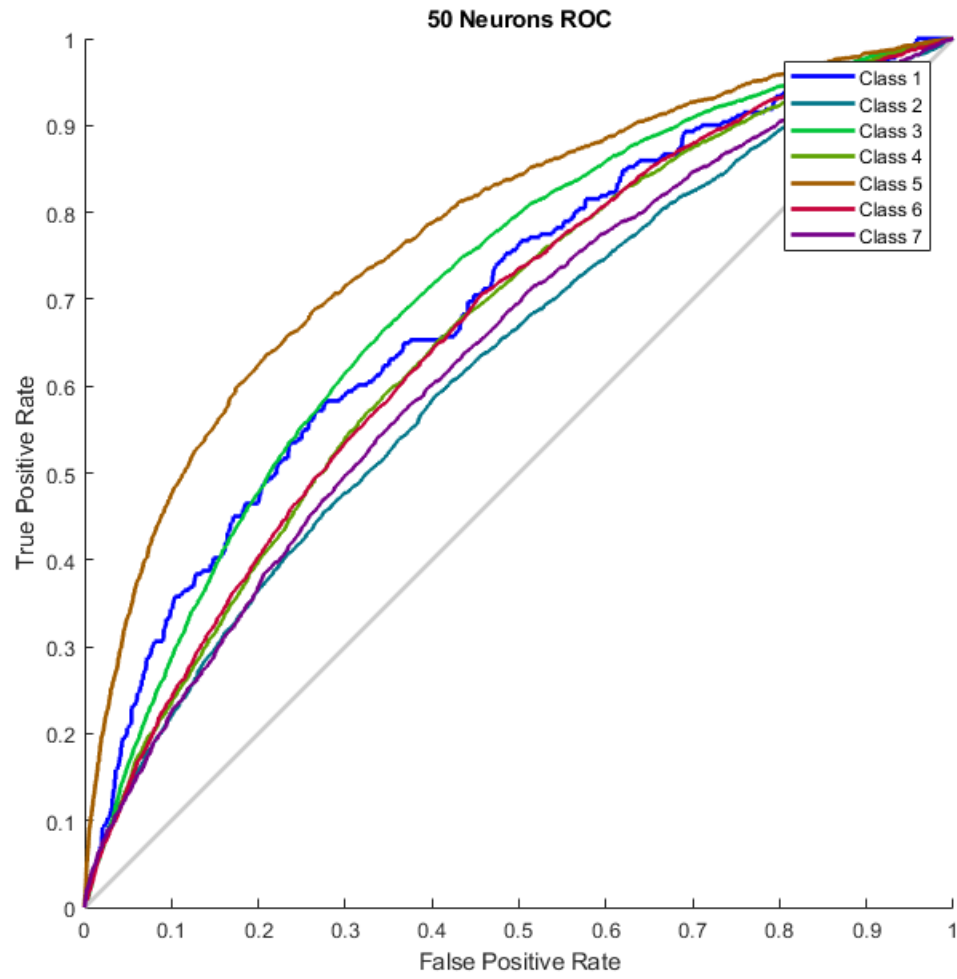


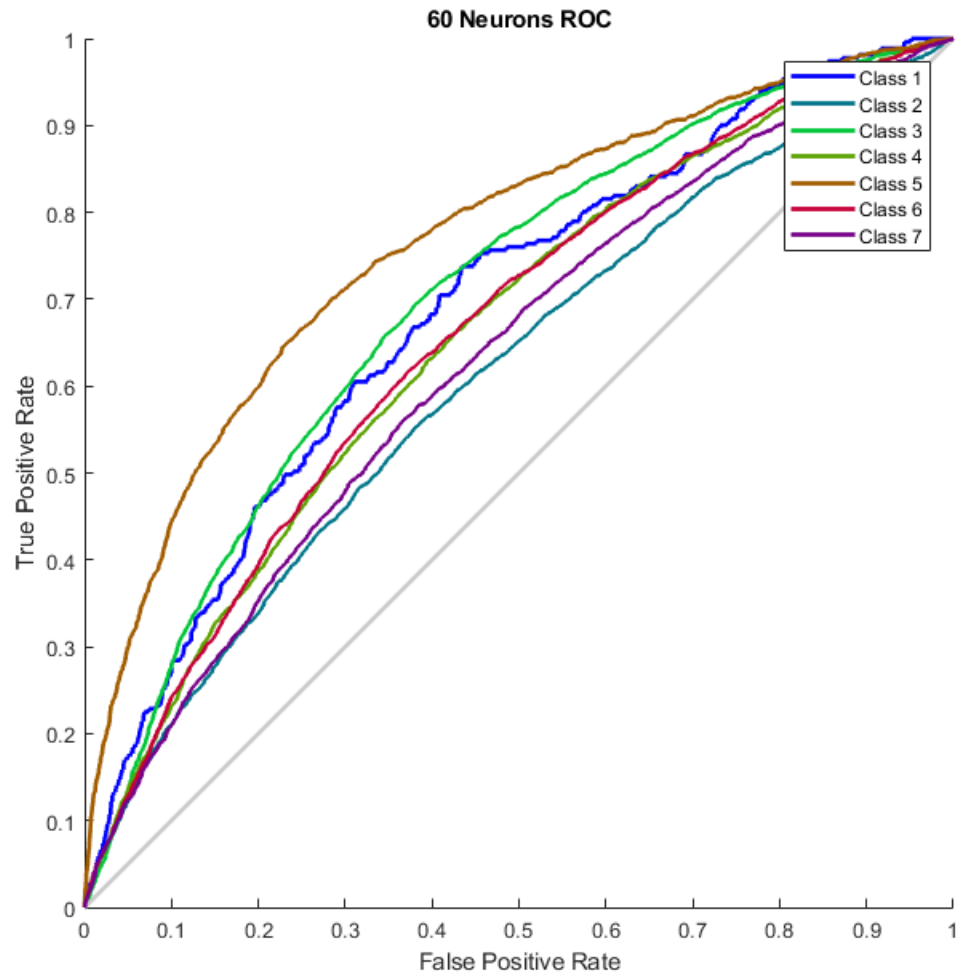


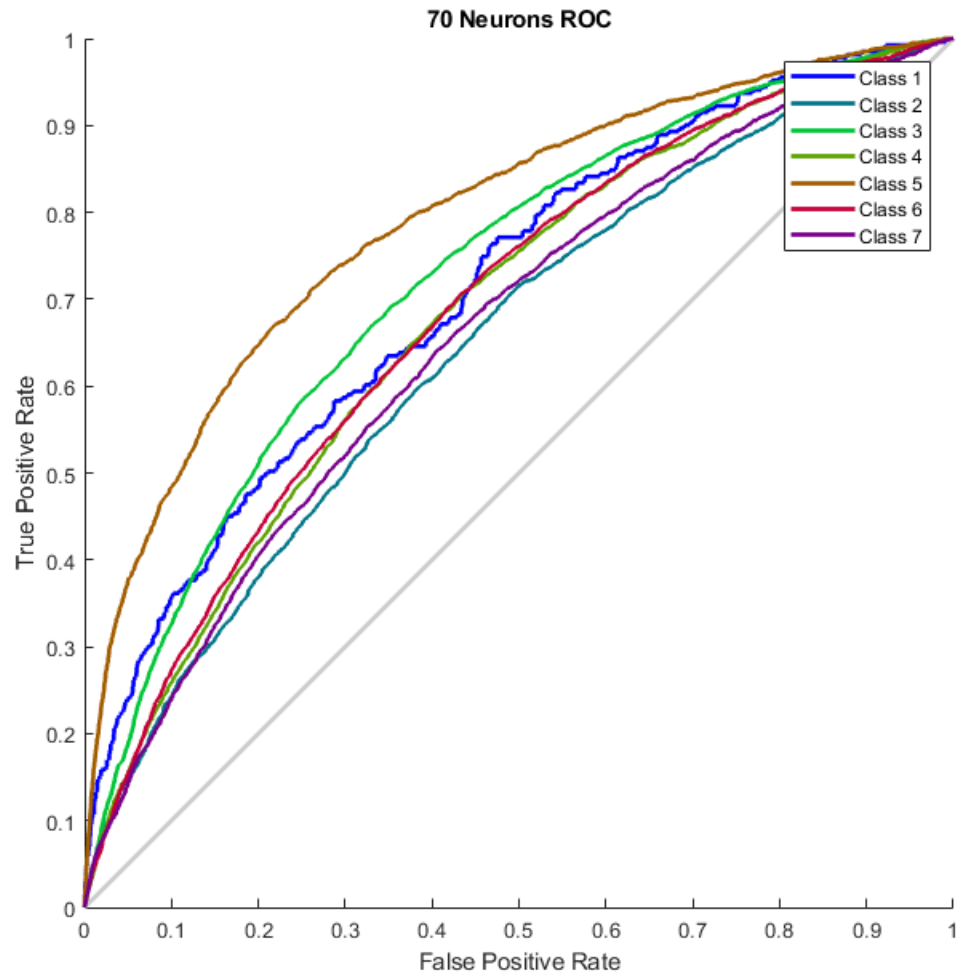


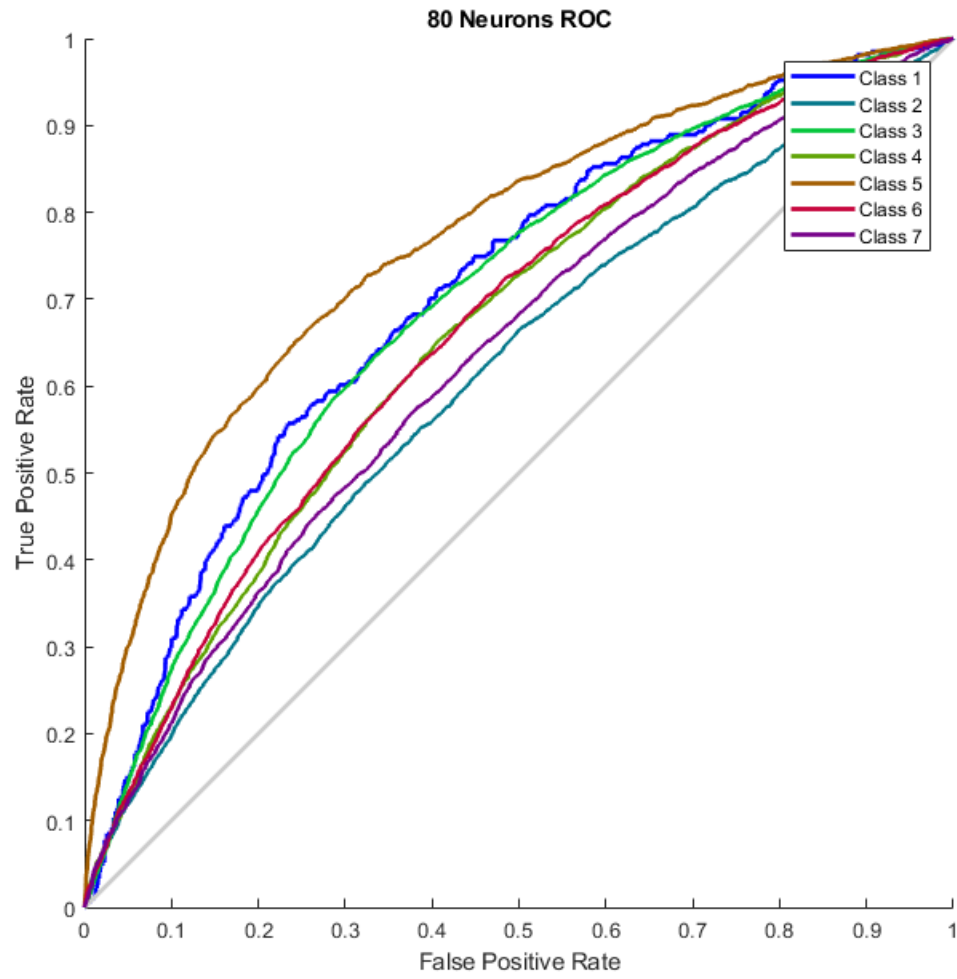


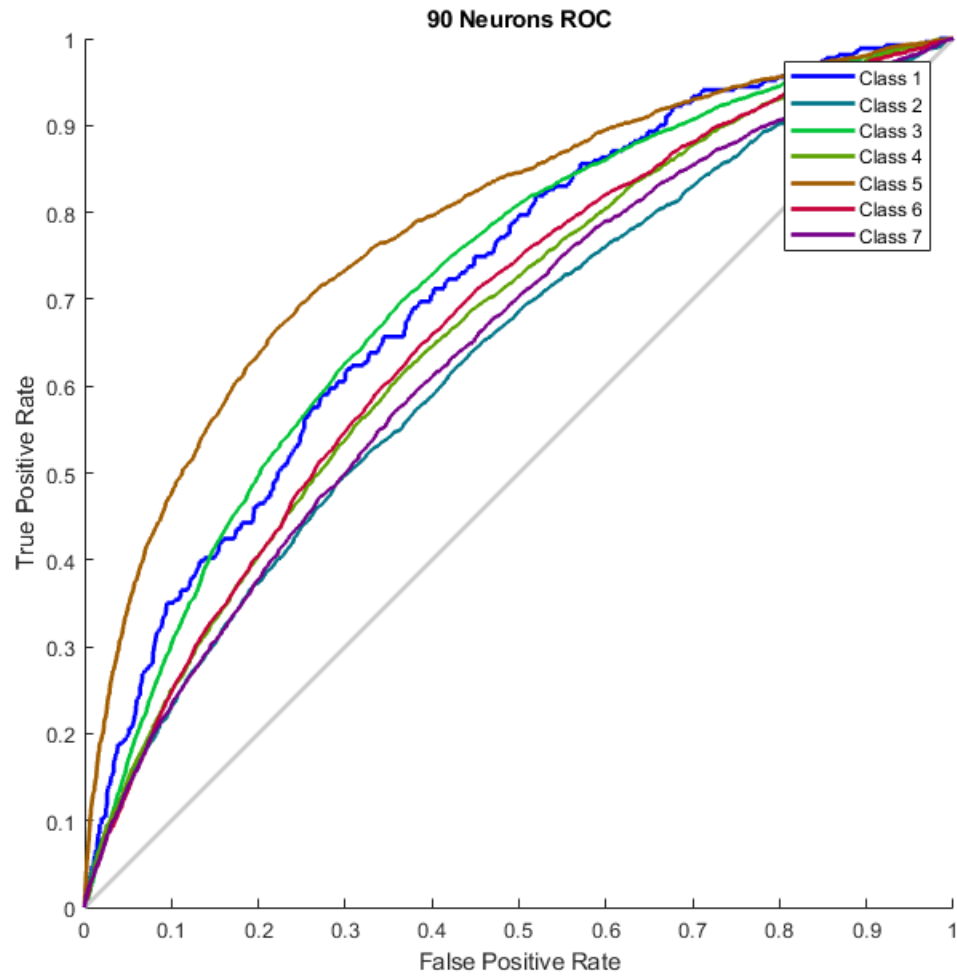


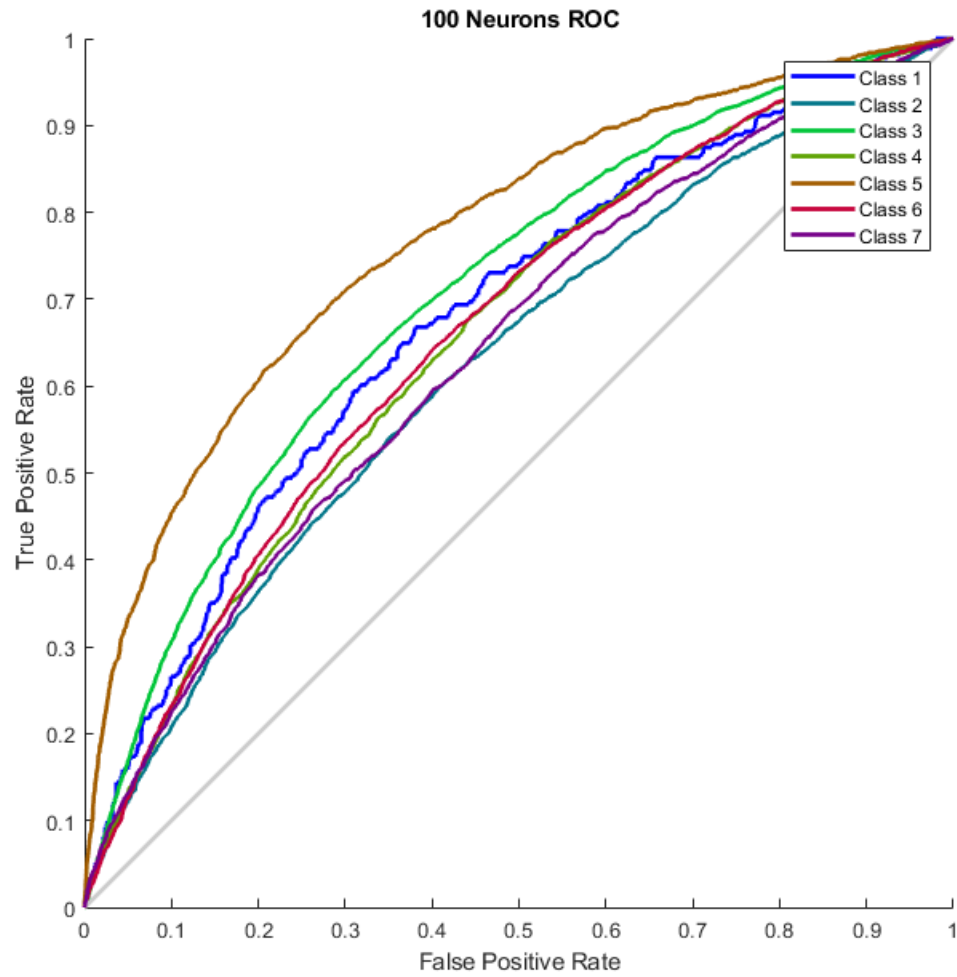


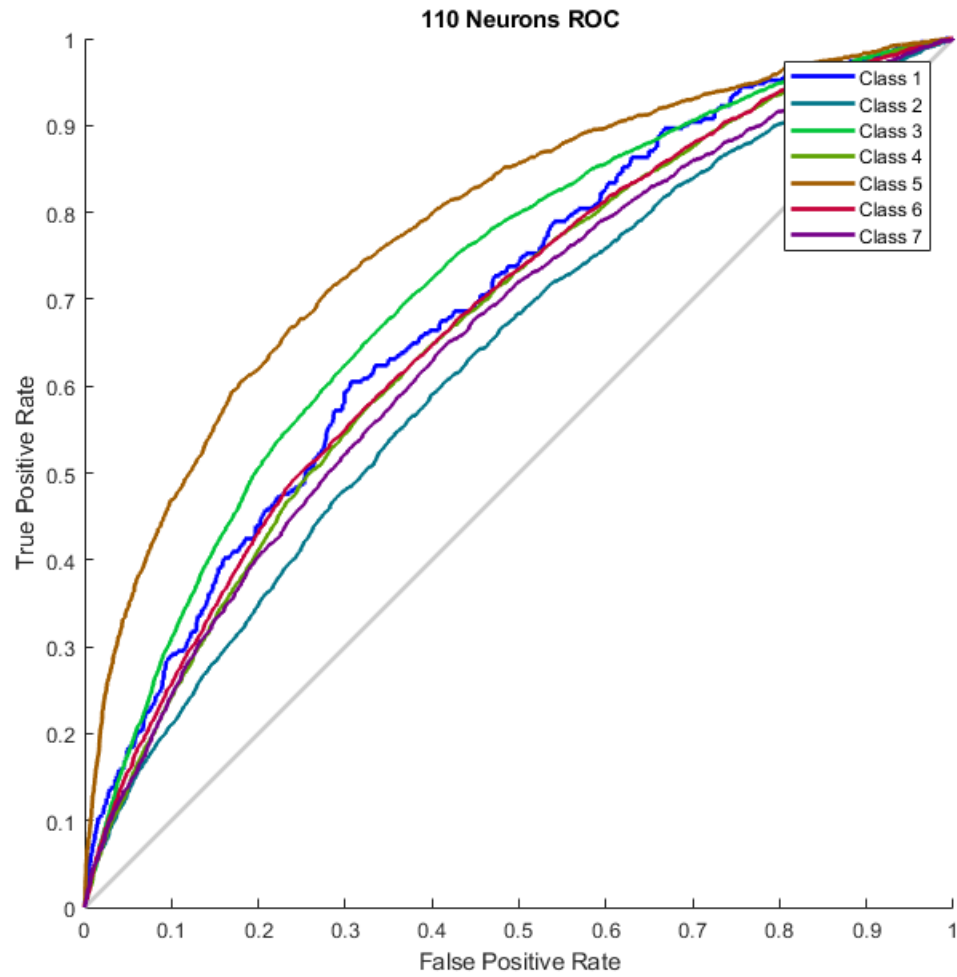


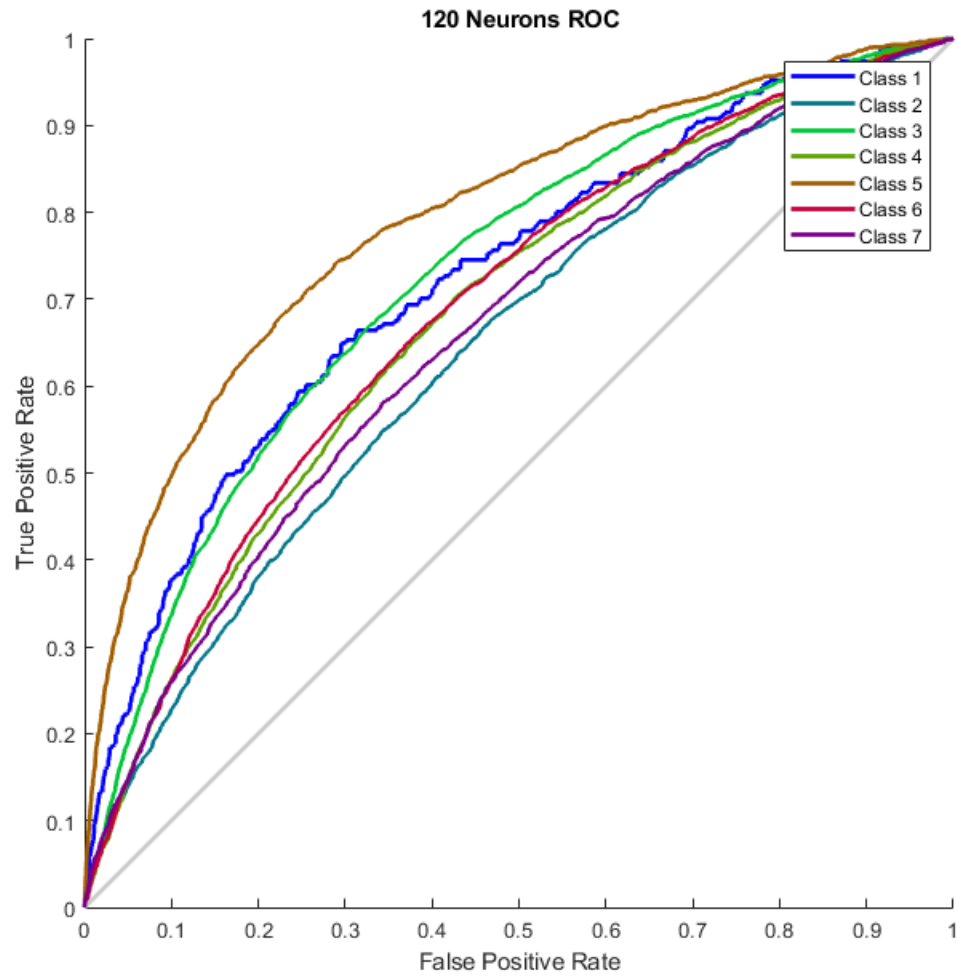


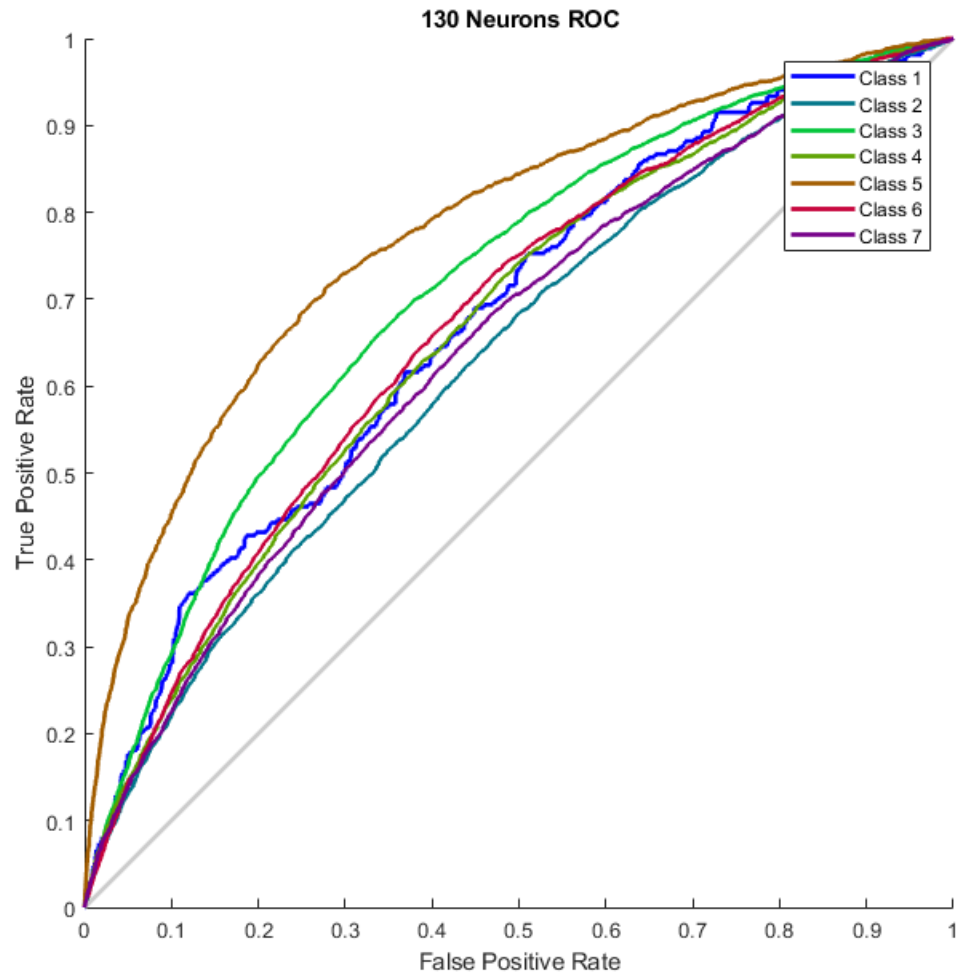


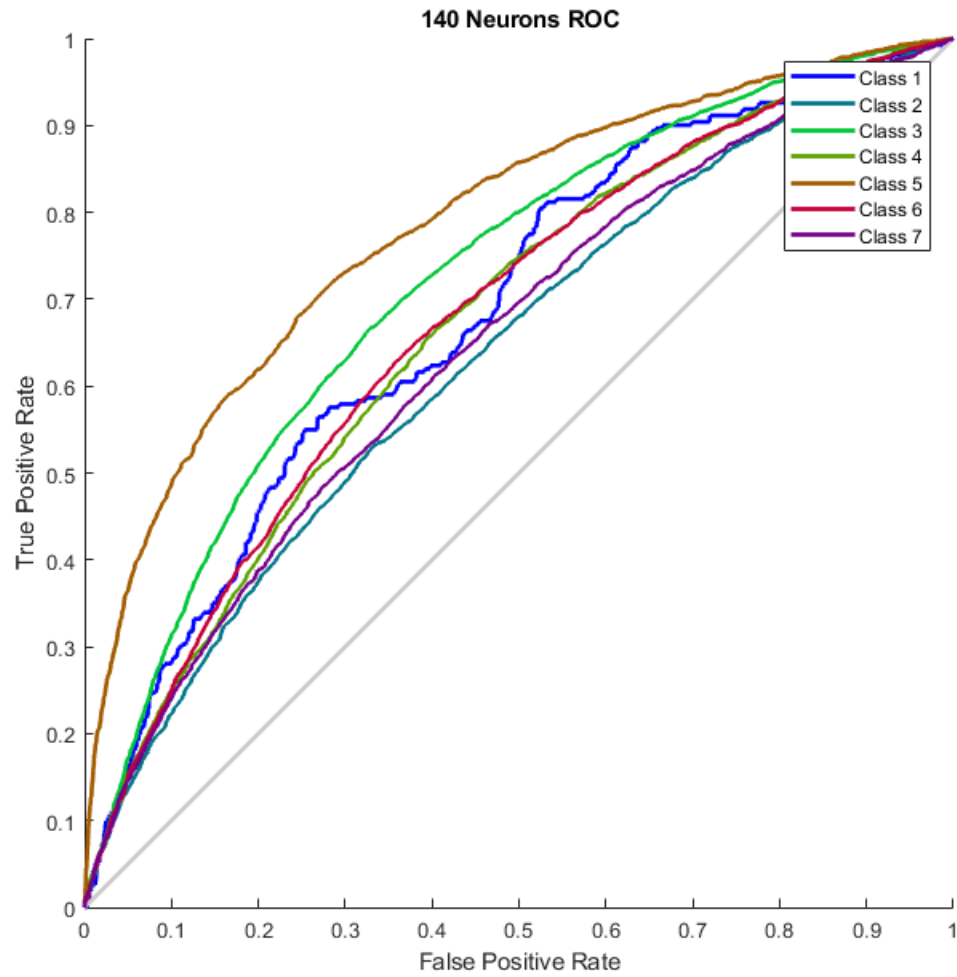


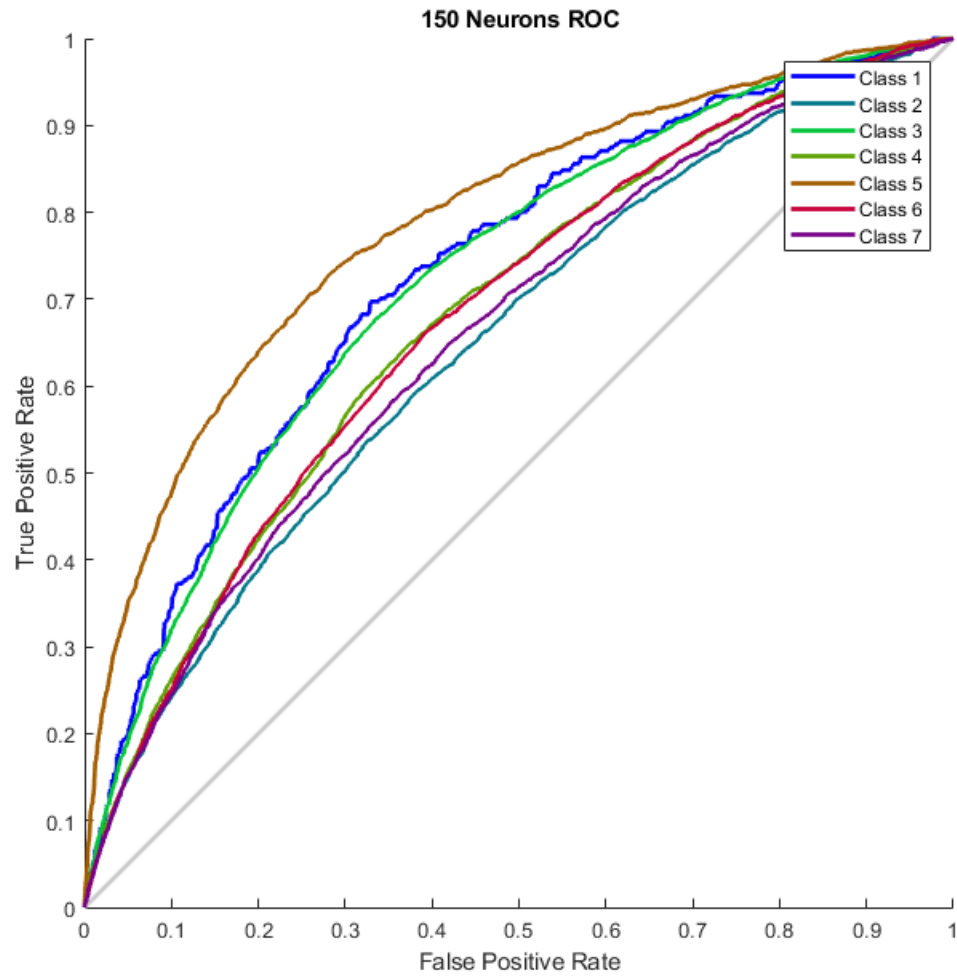


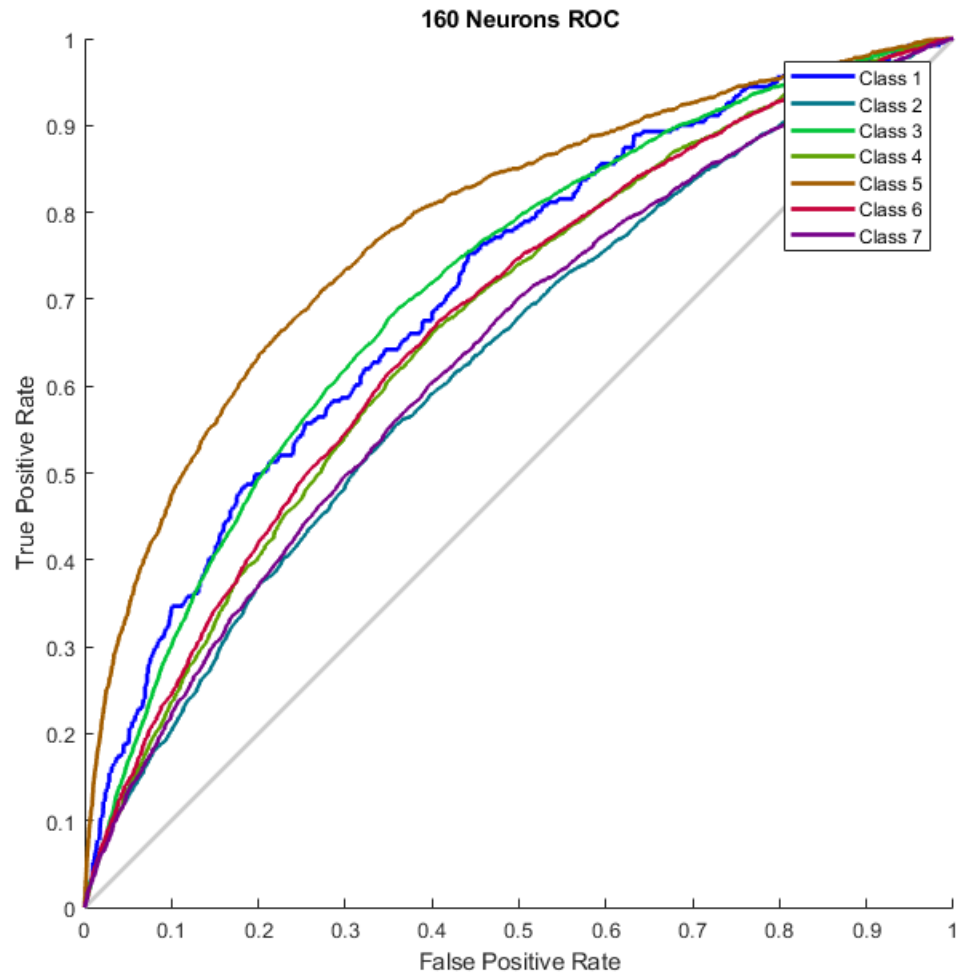


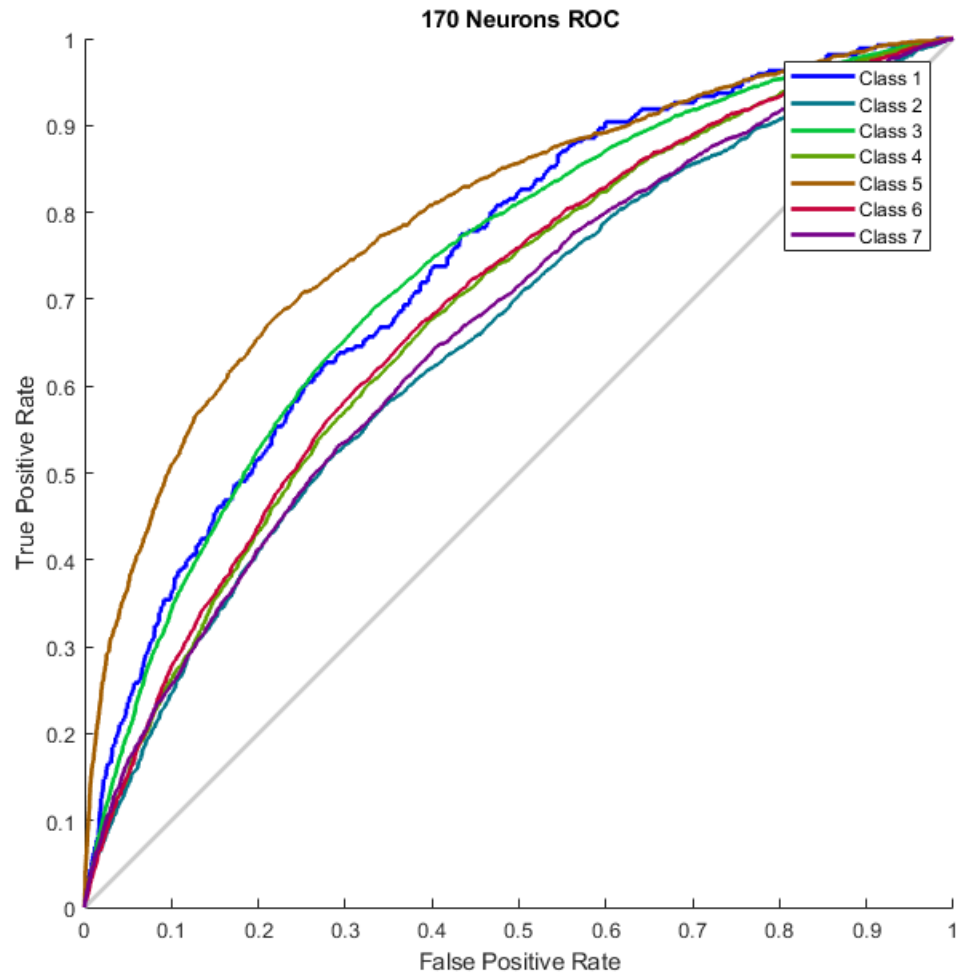


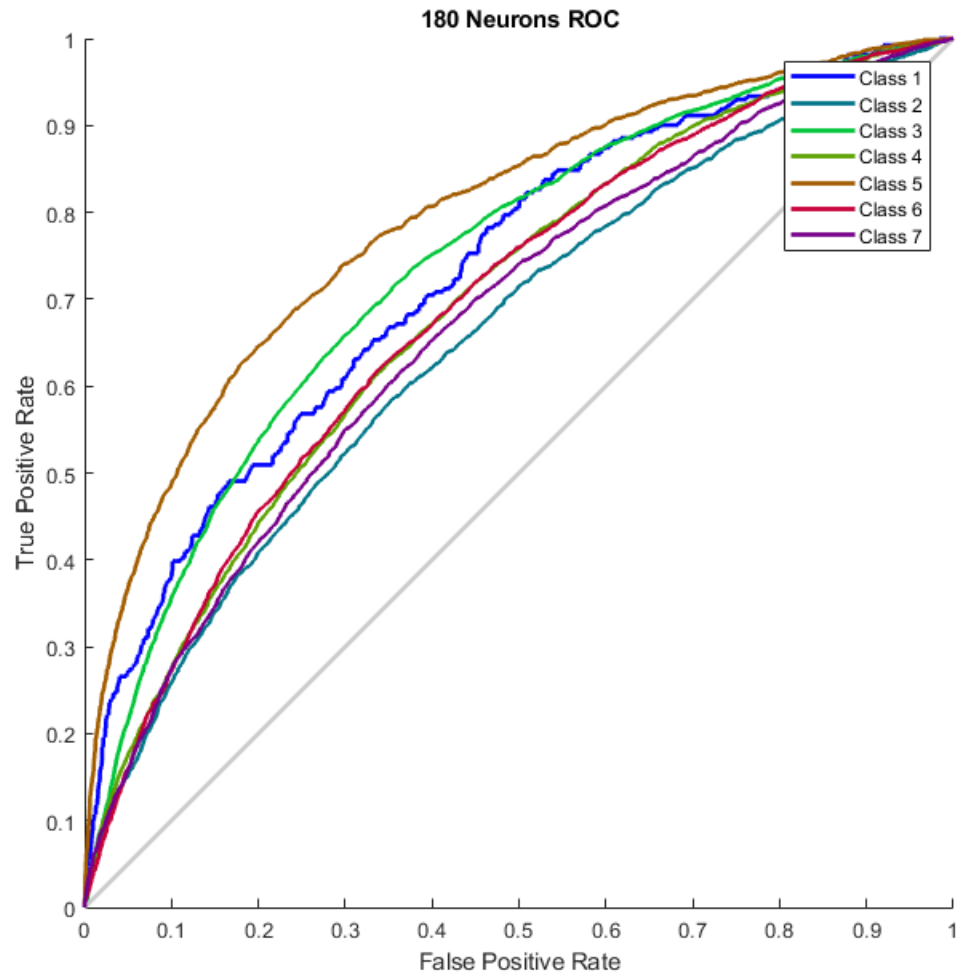


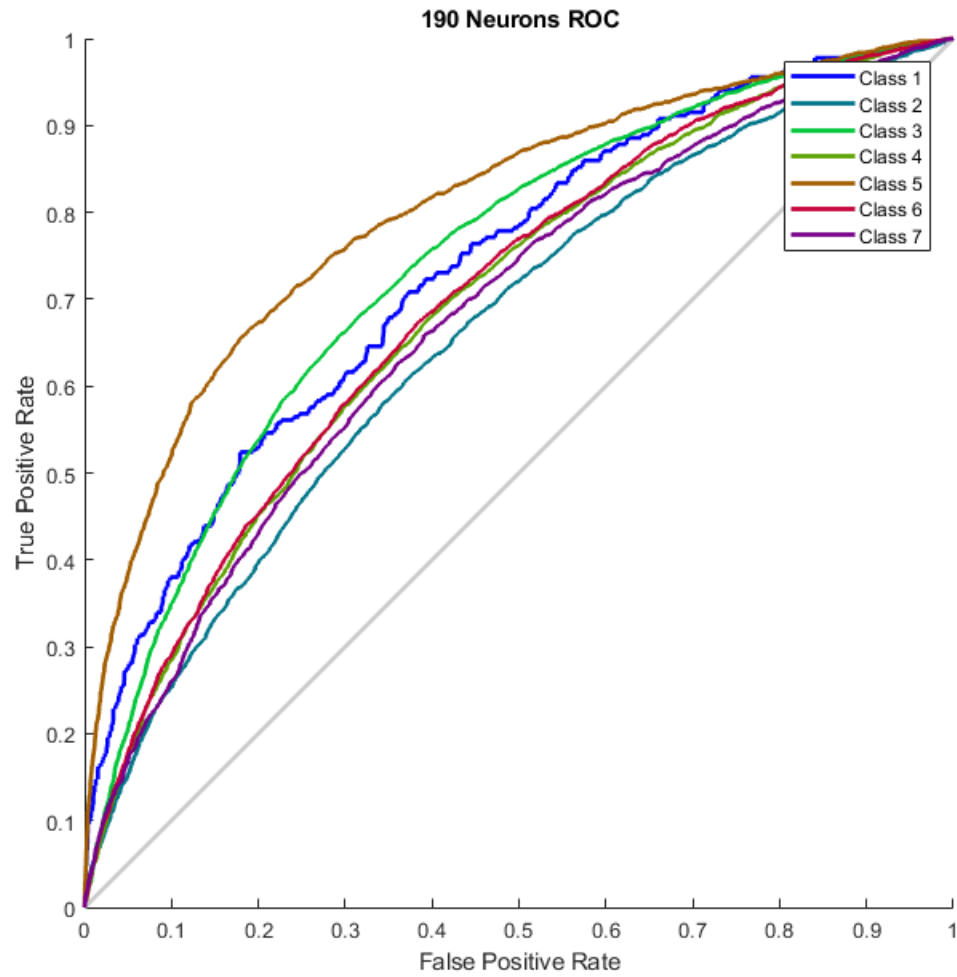


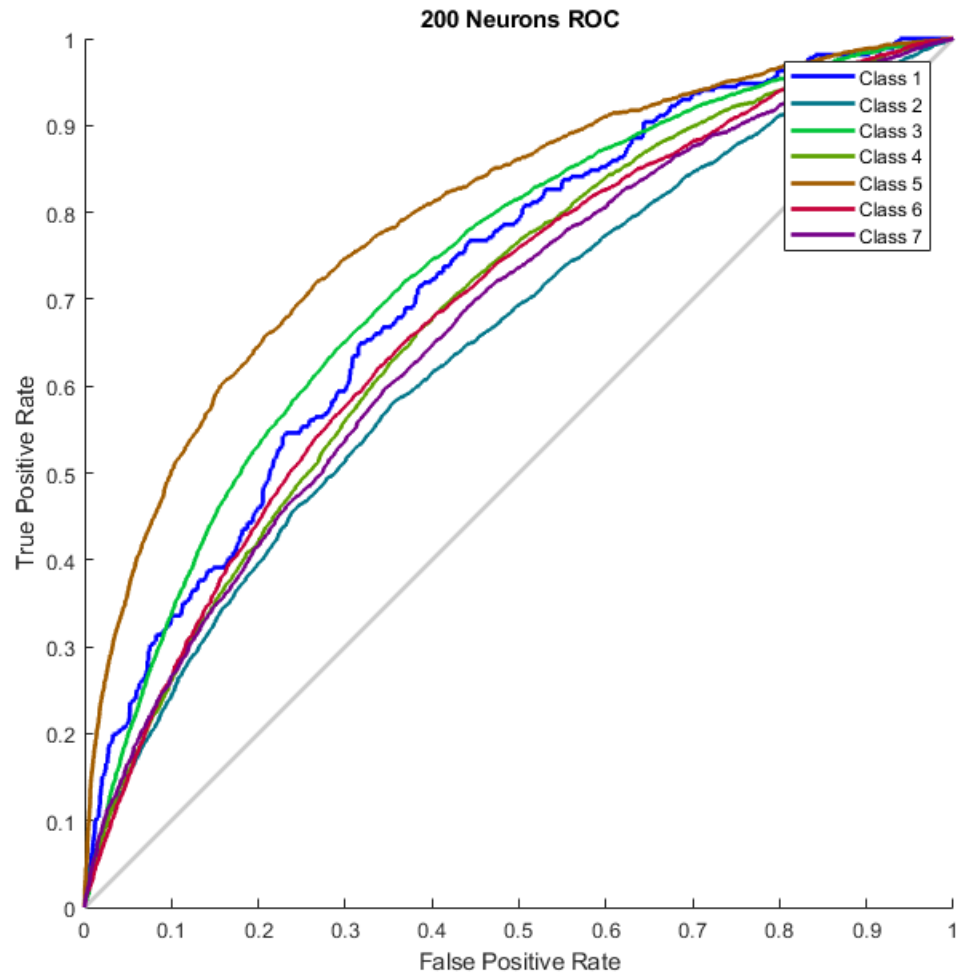






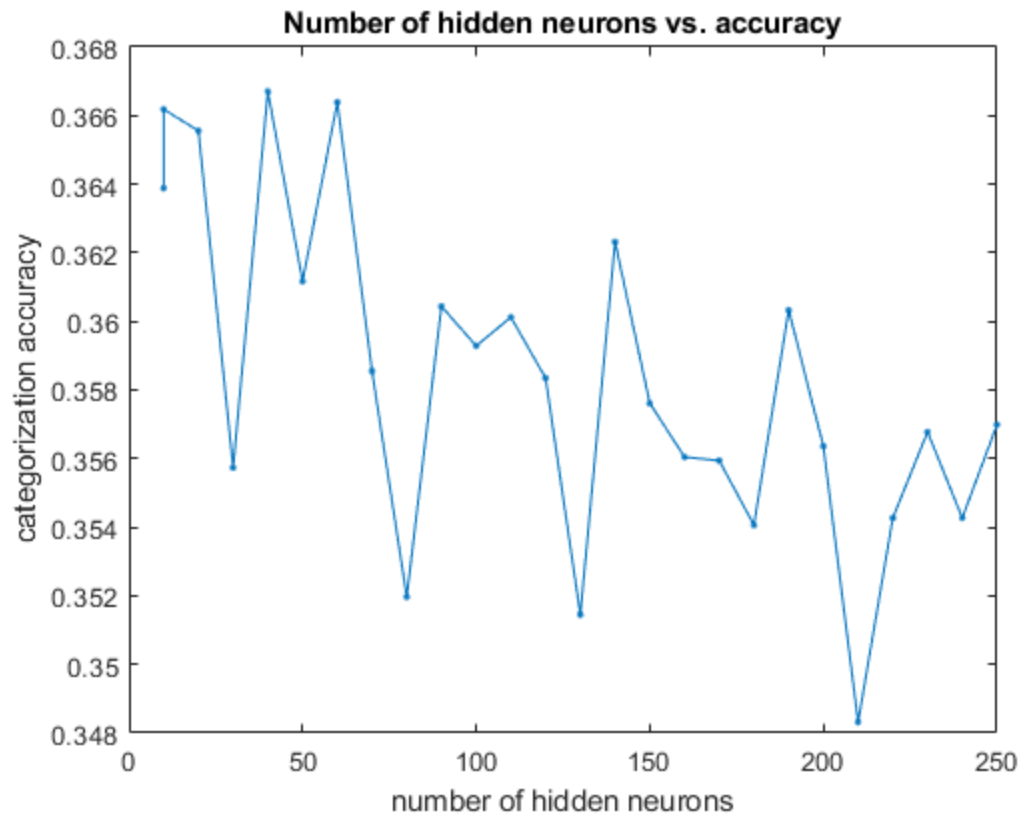






Harr

```
% Below is the accuracy of the sweep.  
openfig("../figSaves/2_SweepResult");
```

Confusion Matrix

```
openfig("../figSaves/ConfusionMatrix_2");
```

Confusion Matrix							
Output Class	1	2	3	4	5	6	
	11 0.1%	4 0.0%	4 0.0%	3 0.0%	4 0.0%	2 0.0%	5 0.0%
	42 0.2%	724 3.8%	261 1.4%	306 1.6%	196 1.0%	268 1.4%	255 1.3%
	66 0.3%	554 2.9%	3025 15.8%	651 3.4%	281 1.5%	699 3.7%	630 3.3%
	42 0.2%	459 2.4%	498 2.6%	1161 6.1%	182 1.0%	506 2.6%	445 2.3%
	20 0.1%	328 1.7%	198 1.0%	155 0.8%	1130 5.9%	226 1.2%	144 0.8%
	50 0.3%	396 2.1%	457 2.4%	573 3.0%	223 1.2%	1338 7.0%	398 2.1%
	40 0.2%	293 1.5%	317 1.7%	367 1.9%	126 0.7%	298 1.6%	777 4.1%
Target Class							
	4.1%	26.3%	63.6%	36.1%	52.8%	40.1%	29.3%
	95.9%	73.7%	36.4%	63.9%	47.2%	59.9%	70.7%
							42.7%
							57.3%

Harr: All ROC

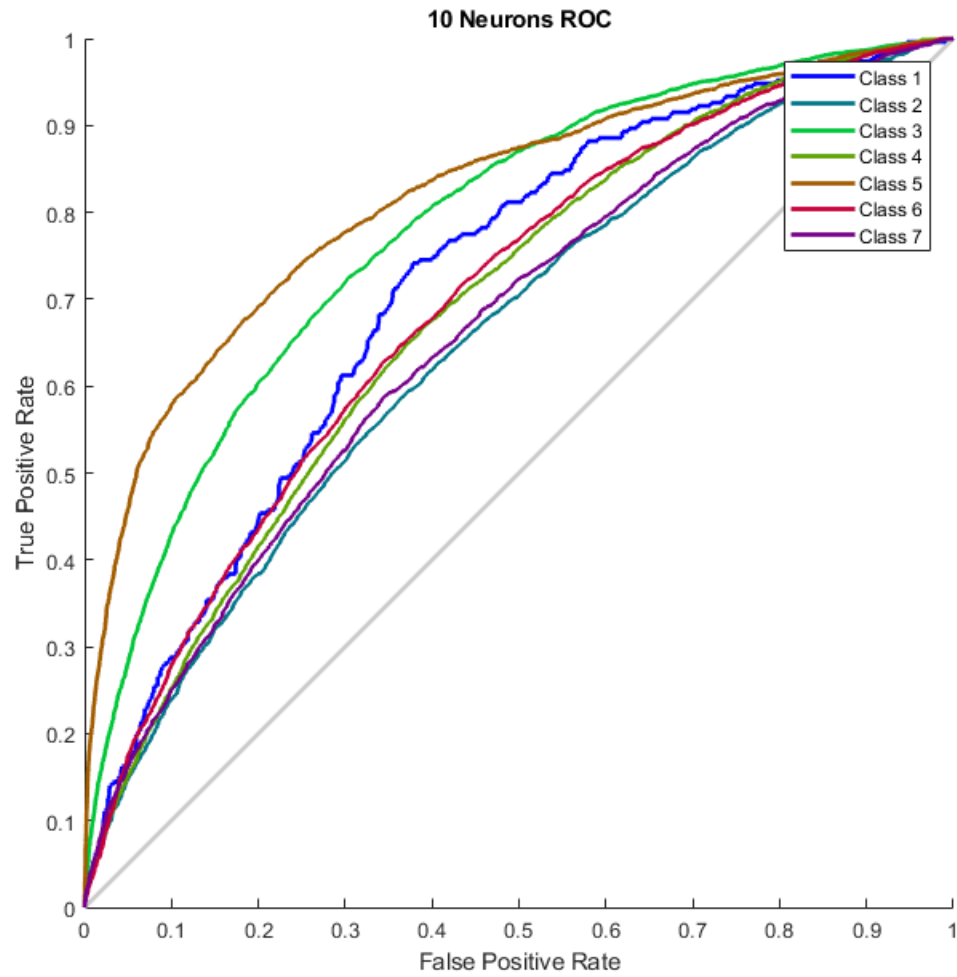
```

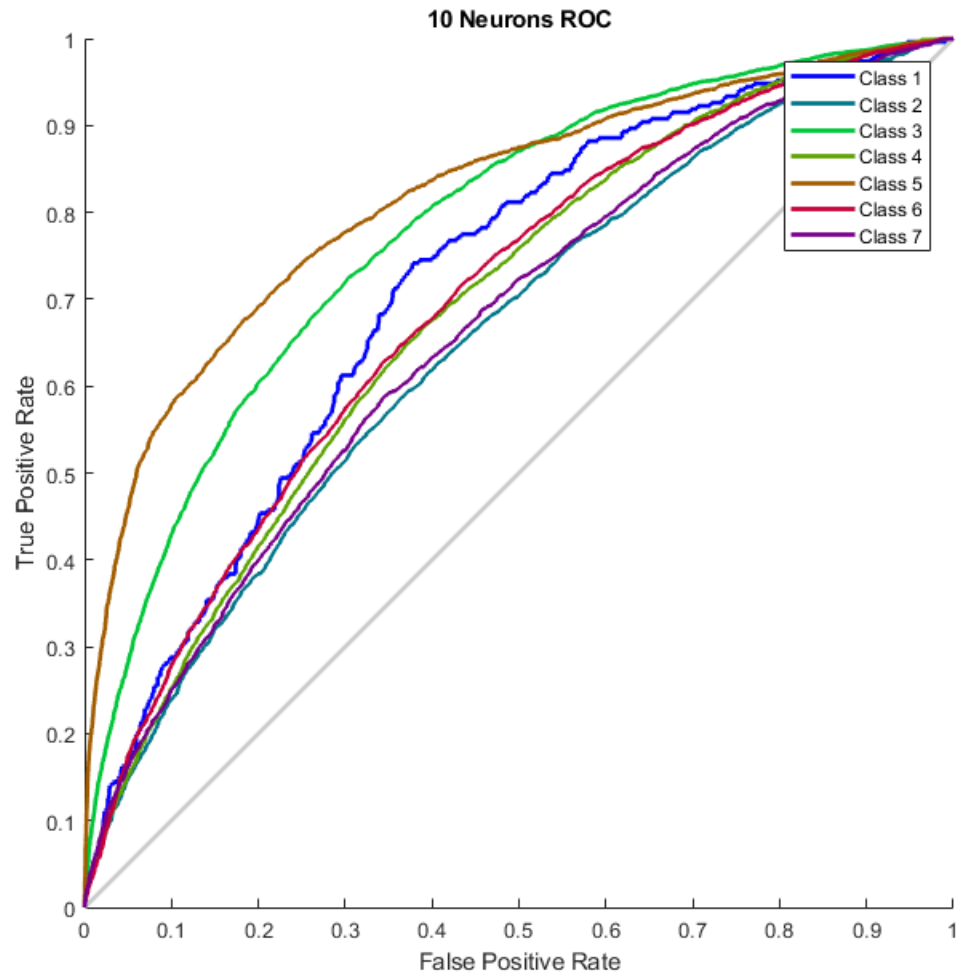
for i = 1:21
    formatSpec = "../figSaves/%dN%dRoc";
    savefigpath = sprintf(formatSpec,2,sweep(i));
    openfig(savefigpath);

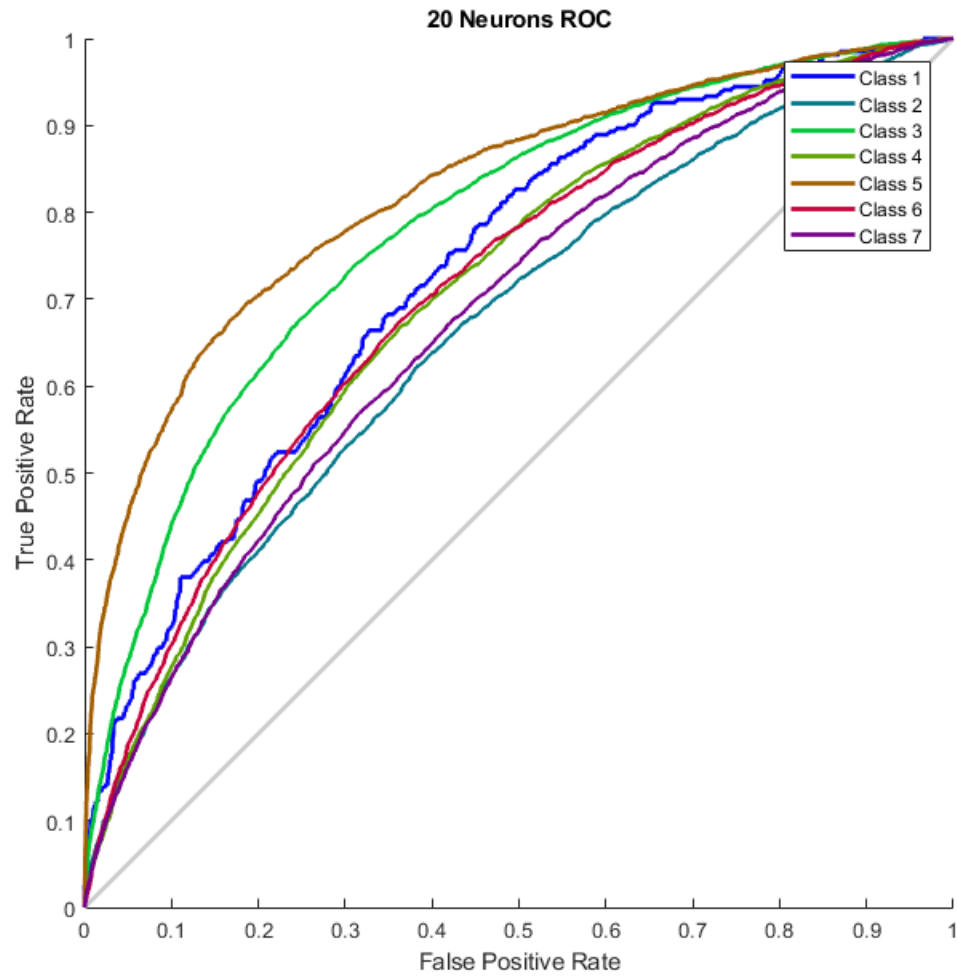
end

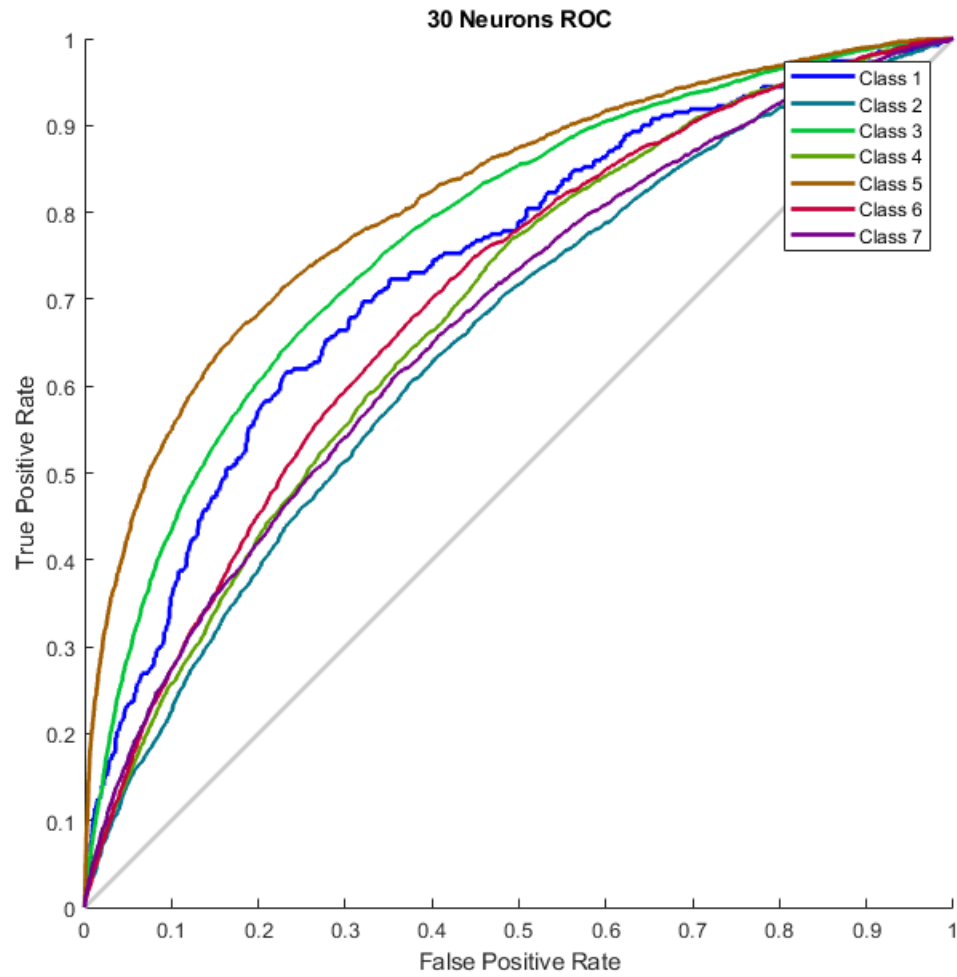
% close all

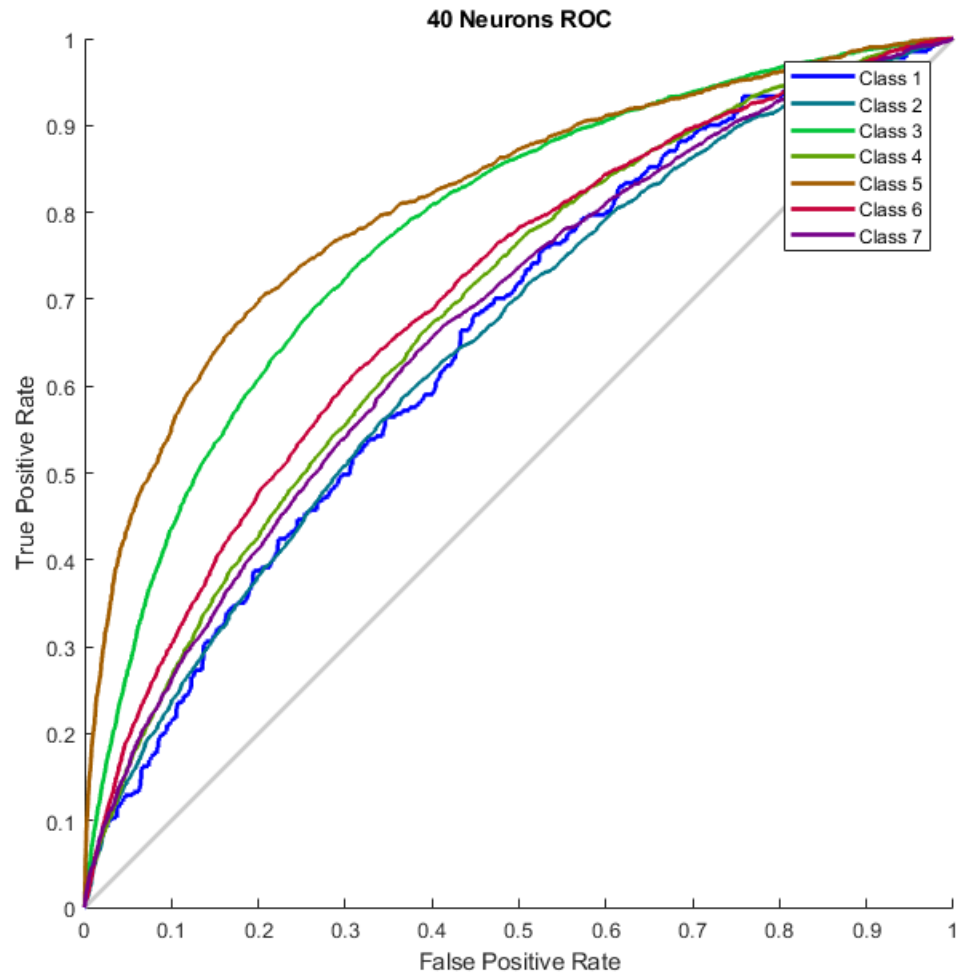
```

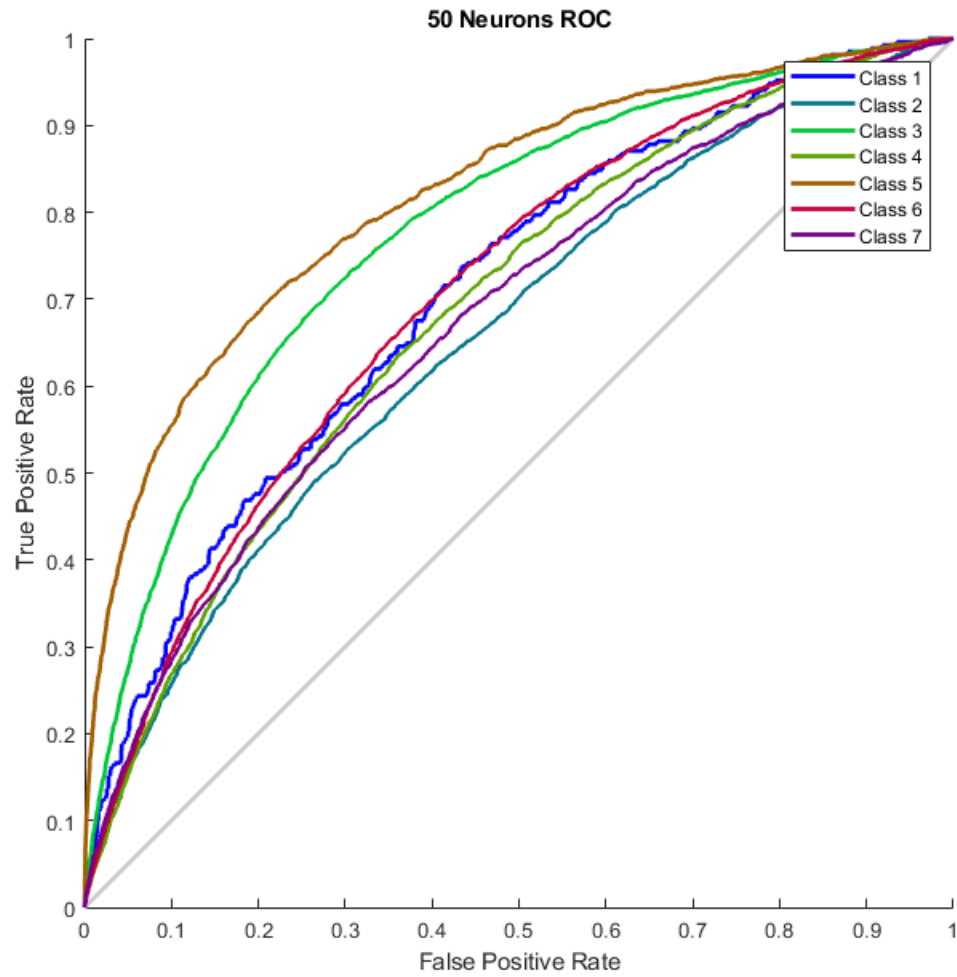


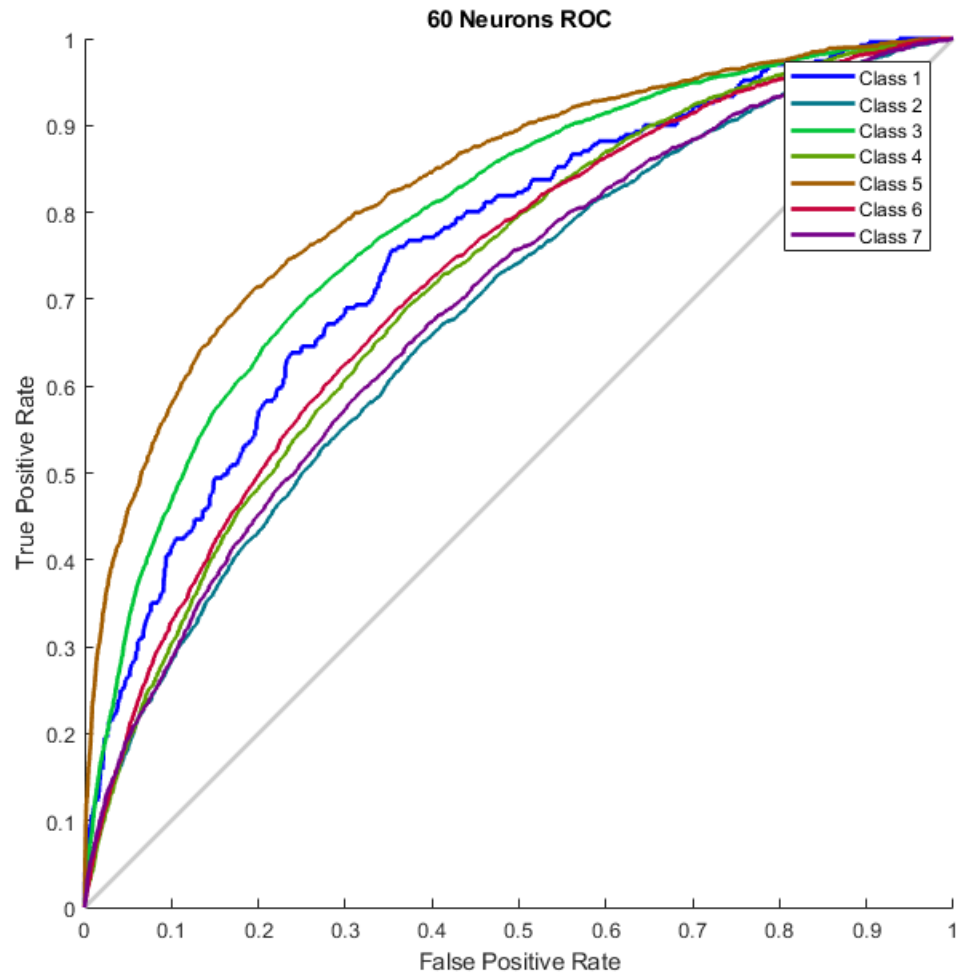


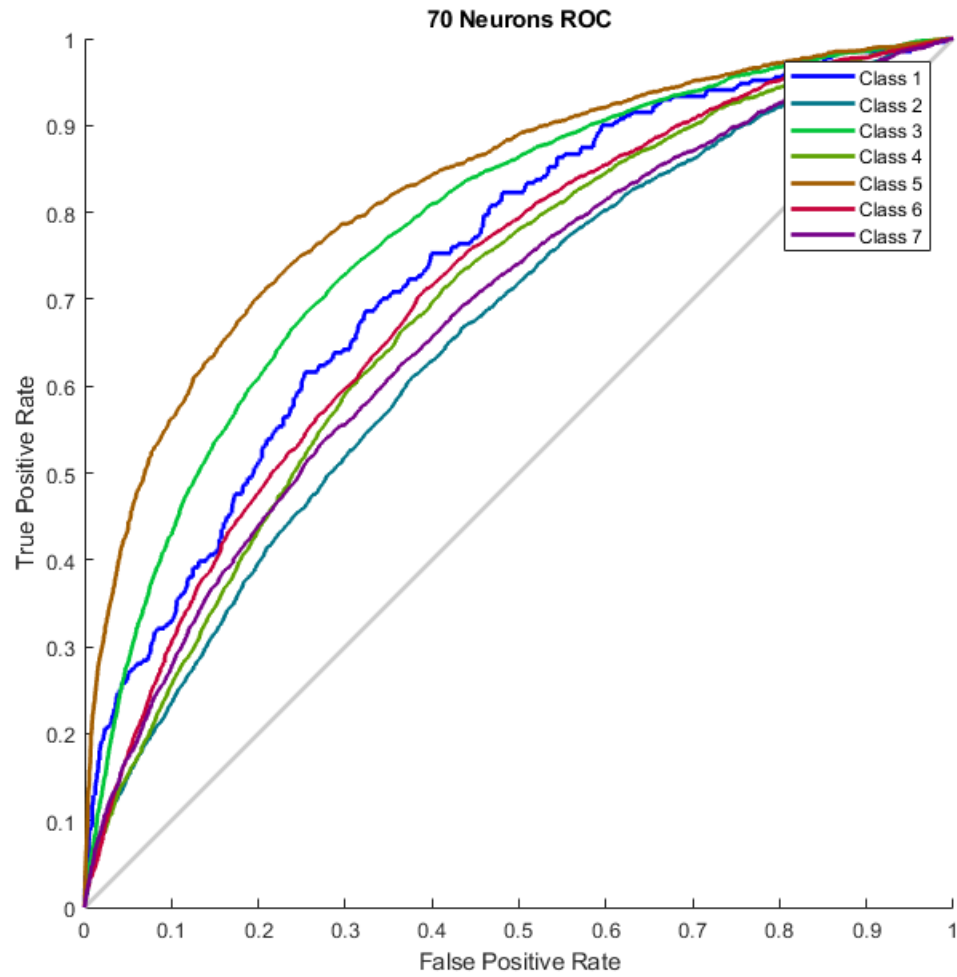


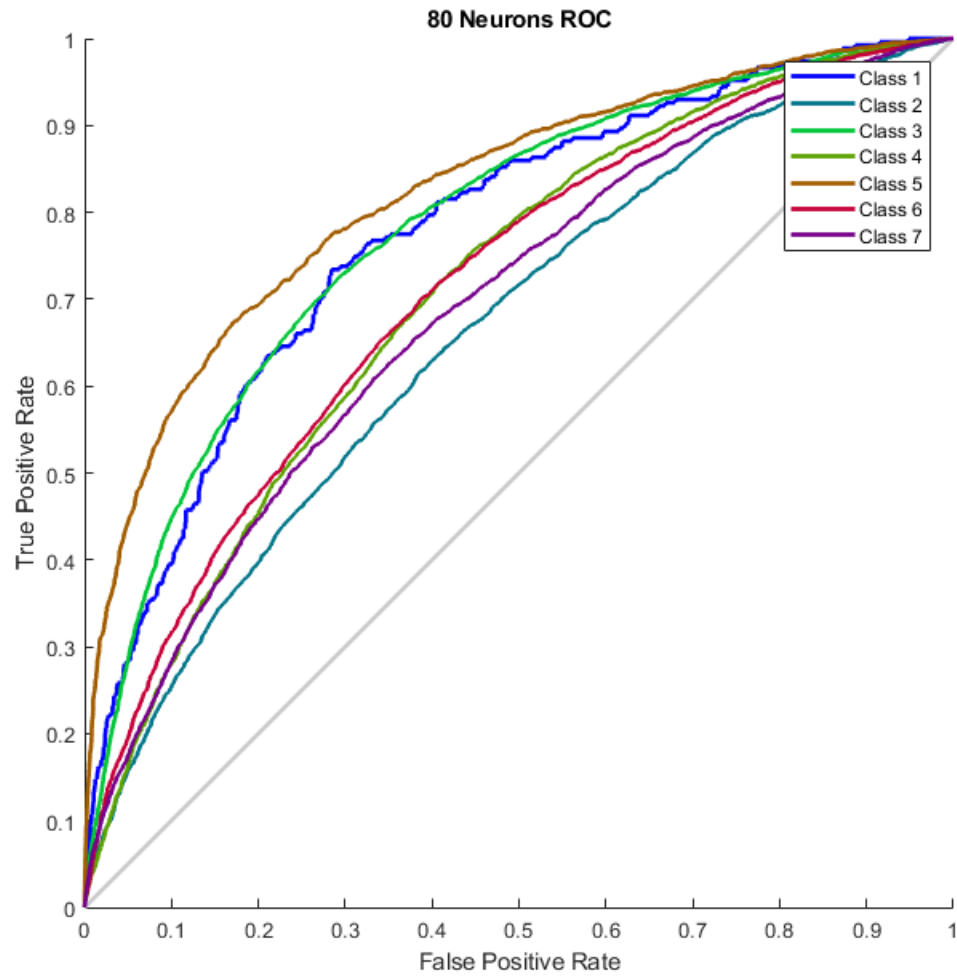


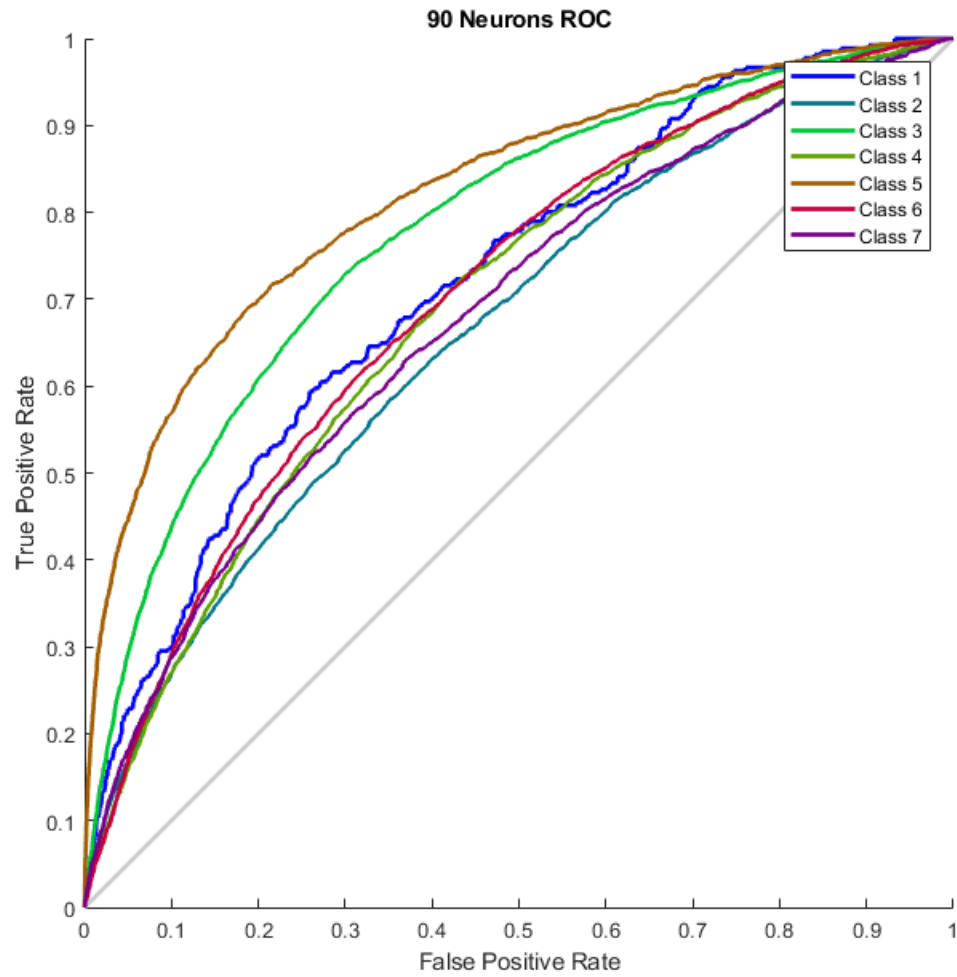


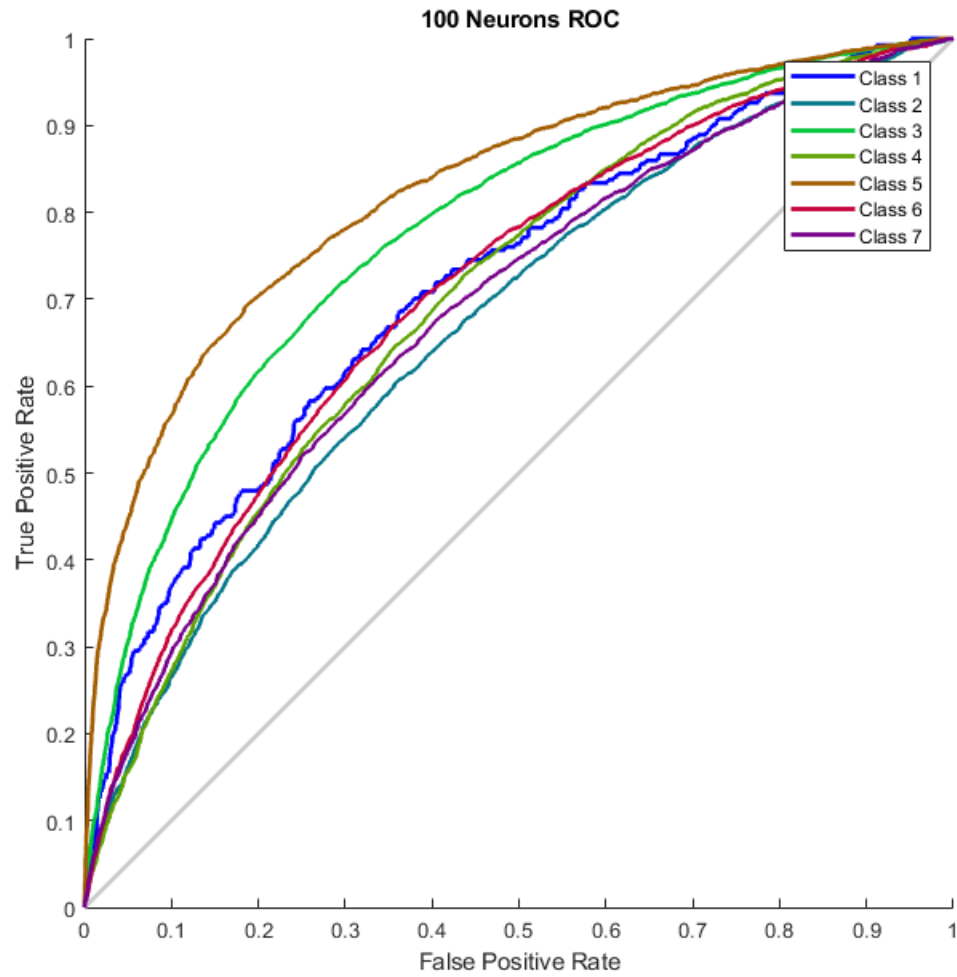


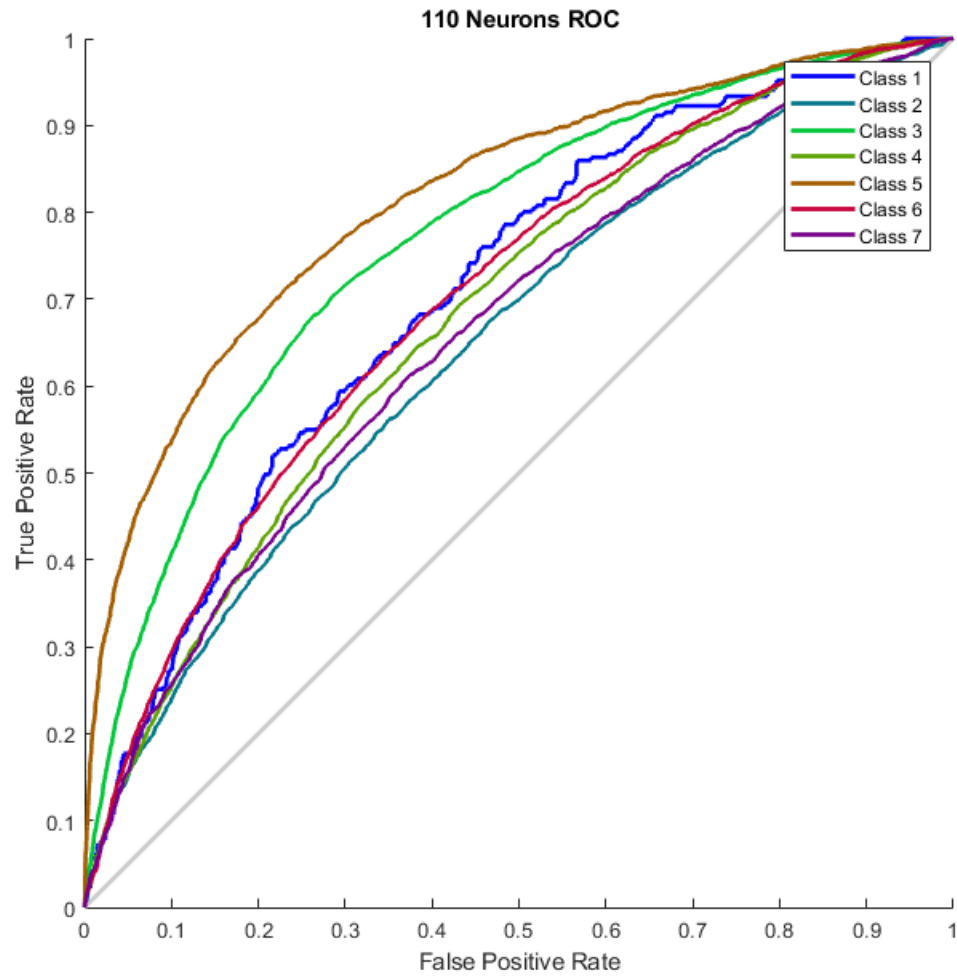


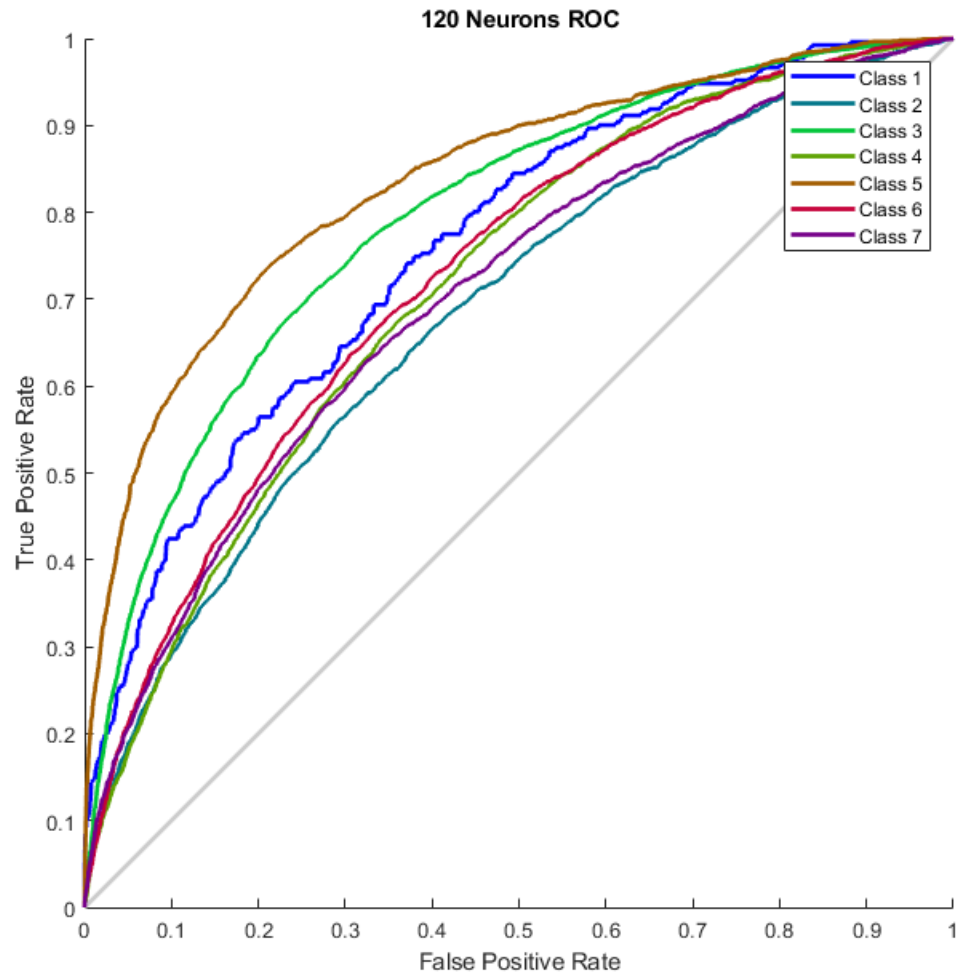


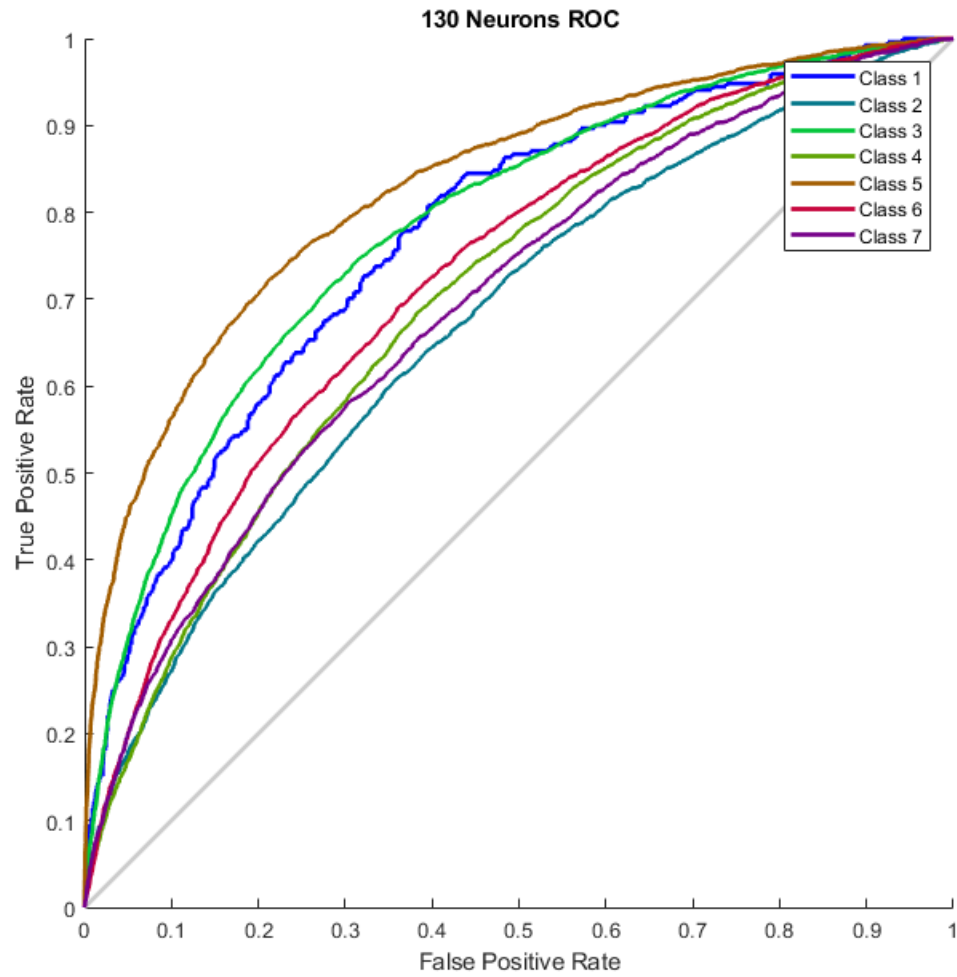


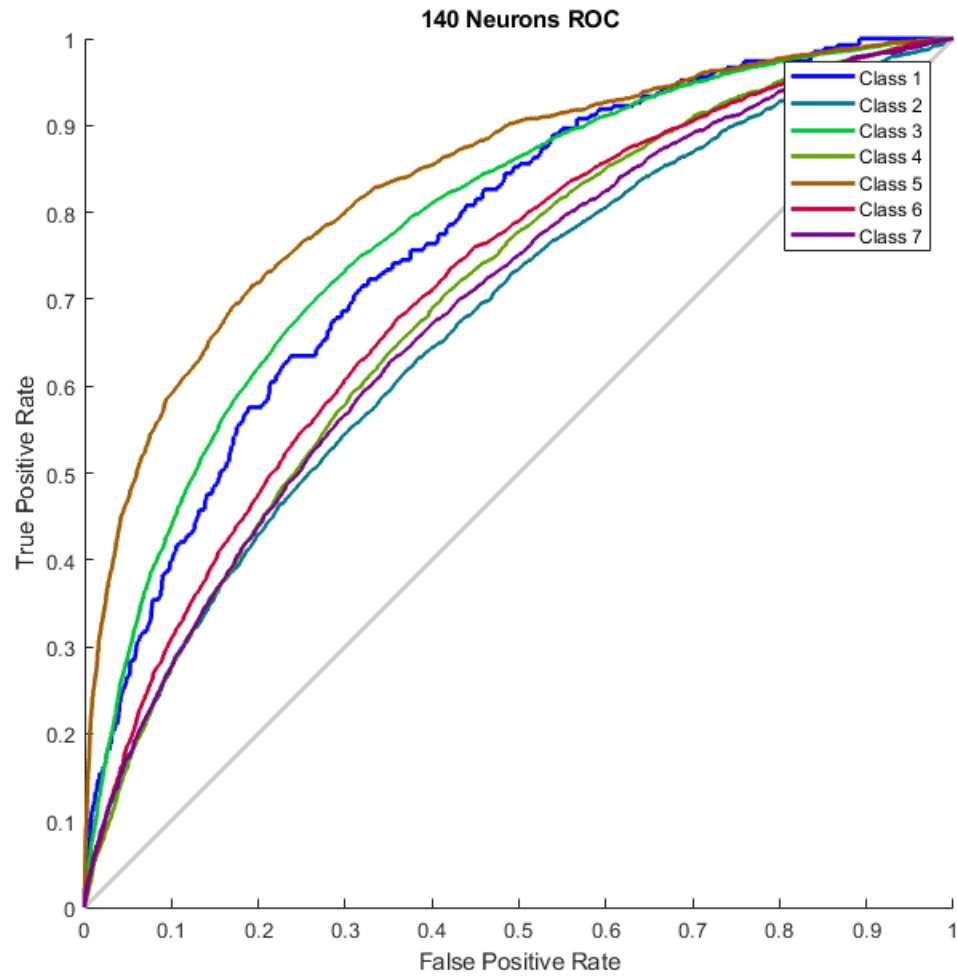


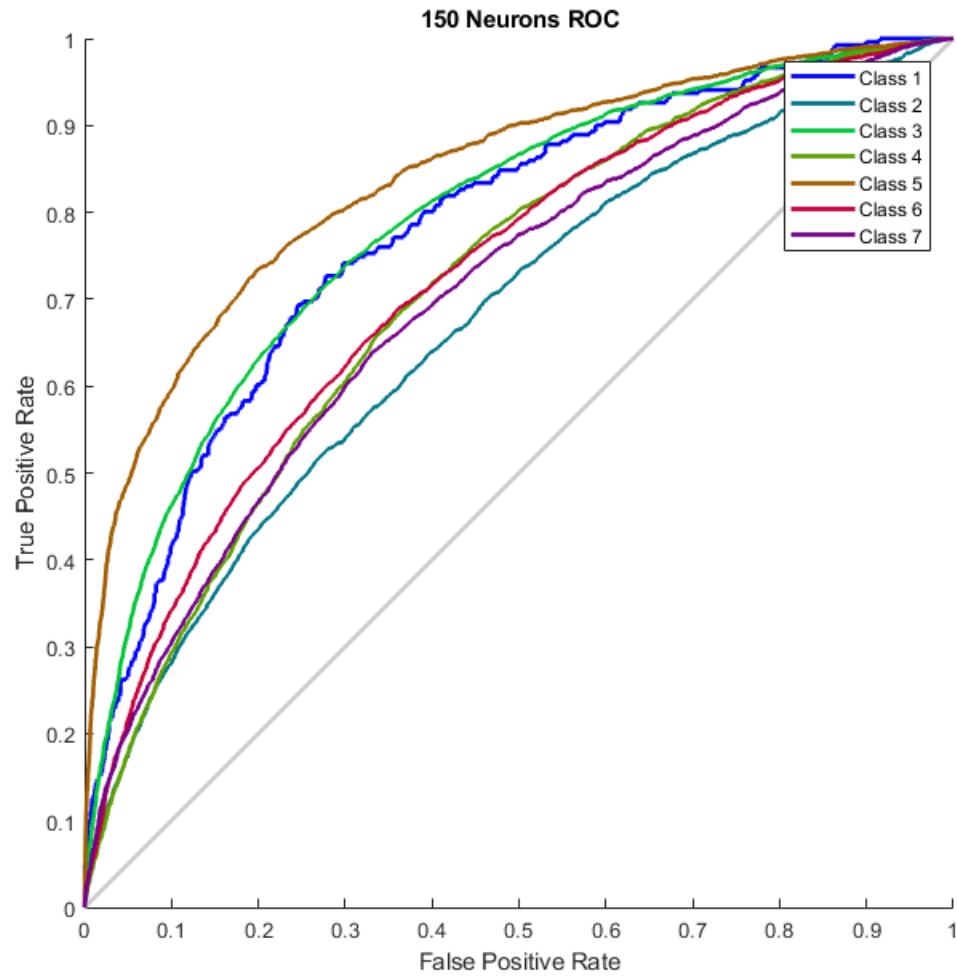


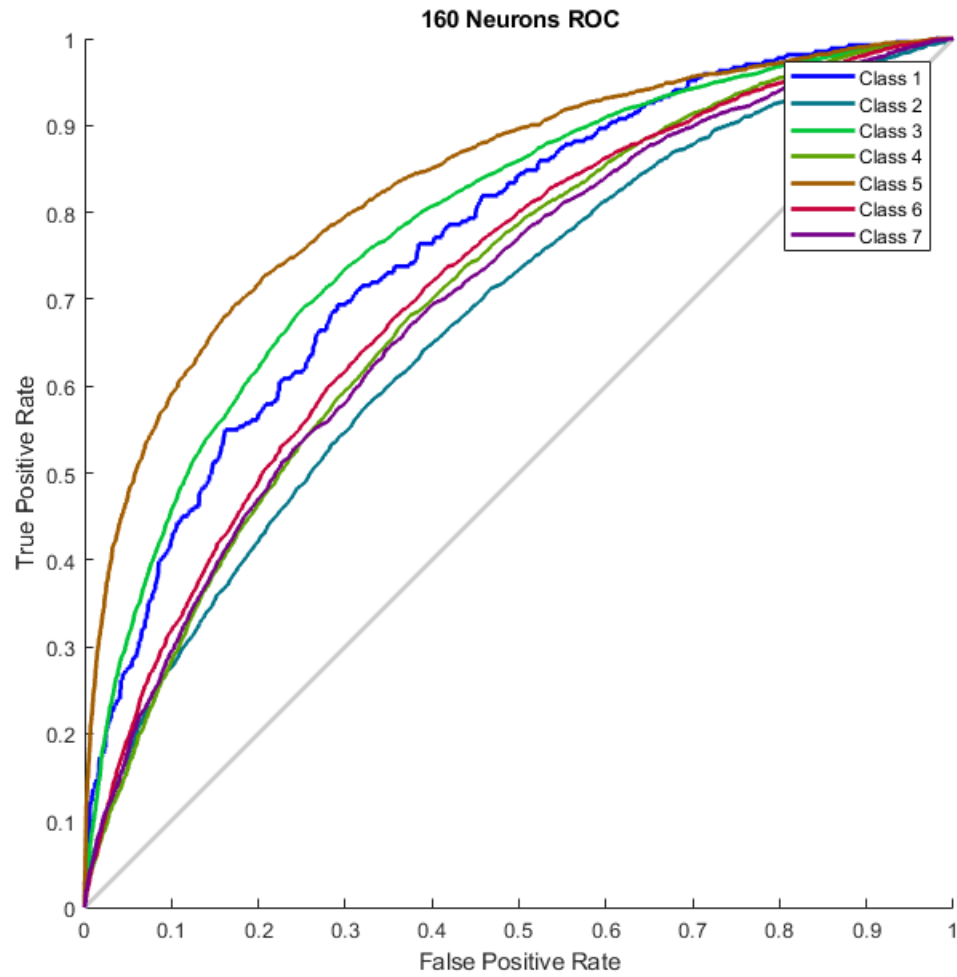


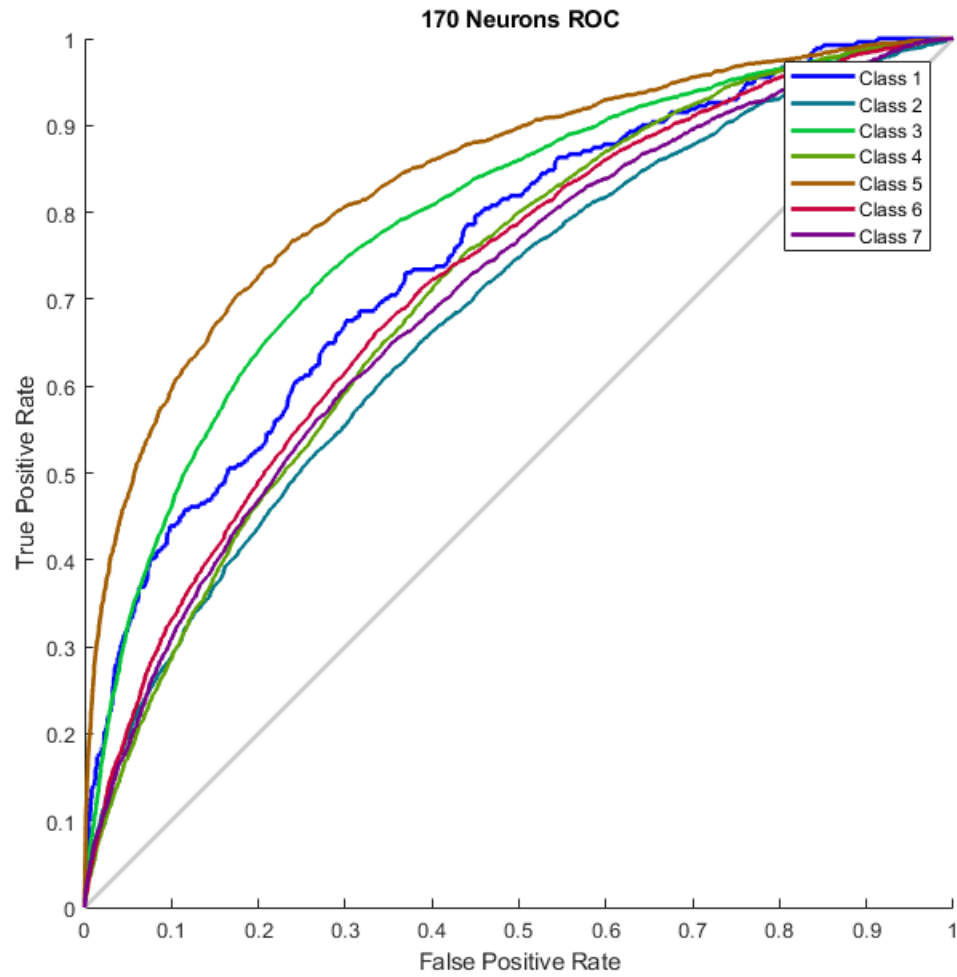


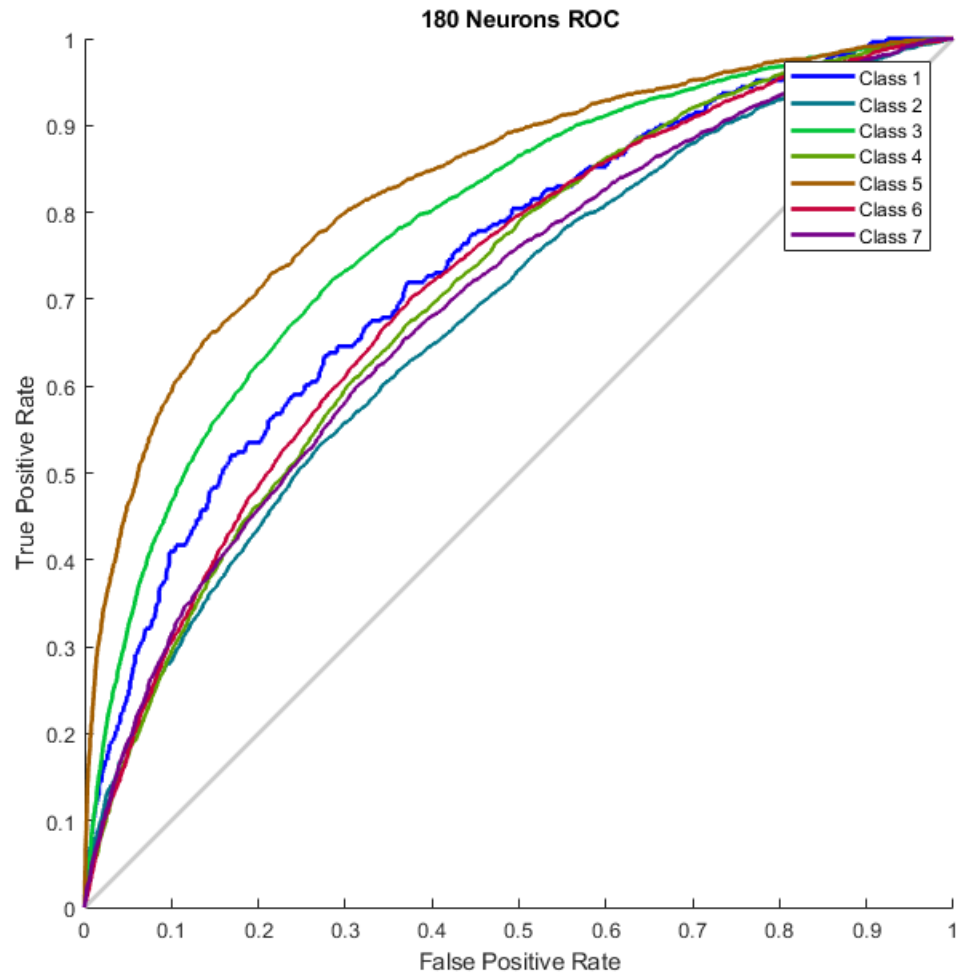


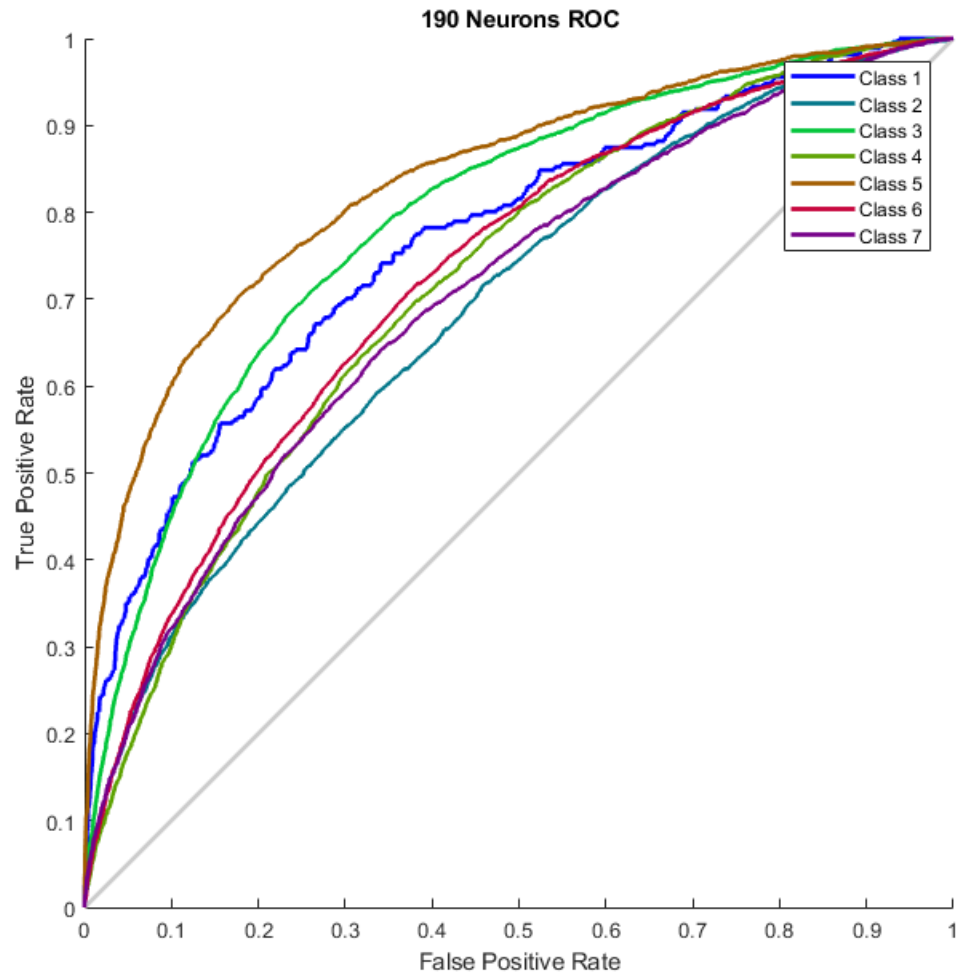


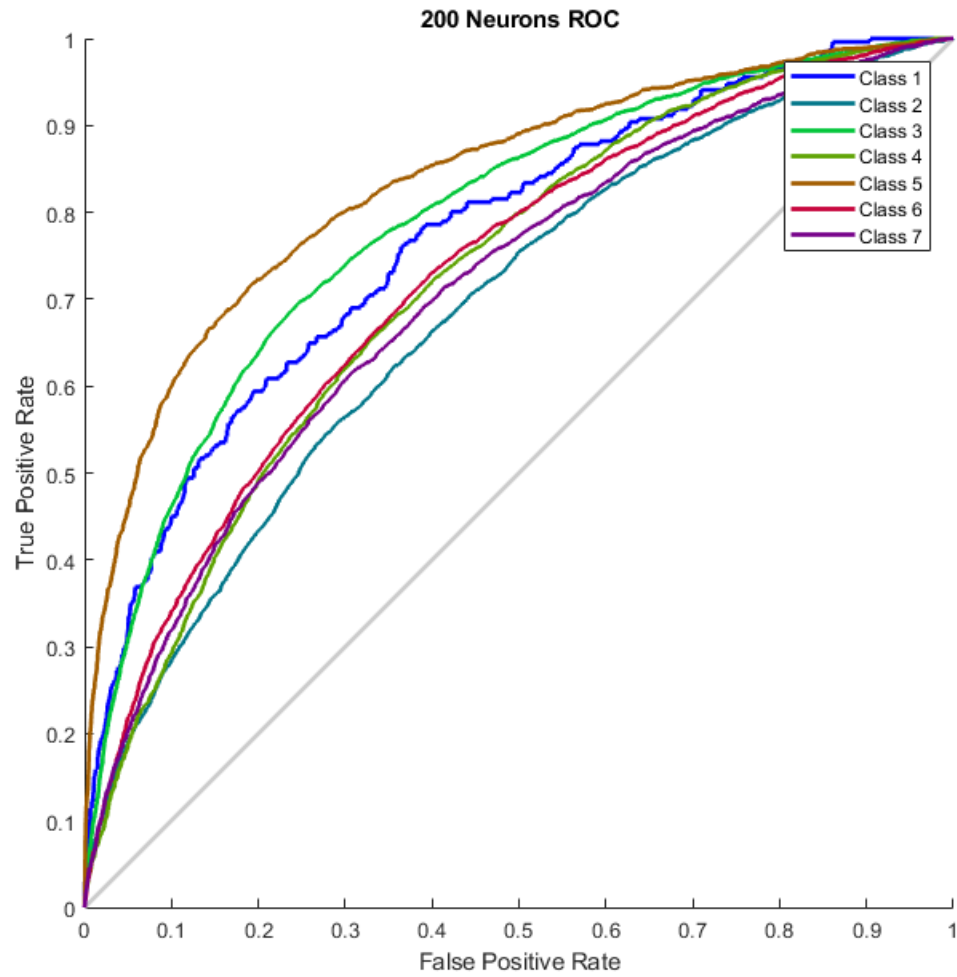












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