North South University

Department of Electrical and Computer Engineering

EEE660/CSE553/CSE468 - Computer Vision

Example Midterm - Summer 2021

Name:	
Student ID:	
Section:	
Date:	

Question 1: (10 marks)

Consider a convolutional network with the following configuration. Calculate (show the calculation) the number of trainable parameters per layer and in total

Layer #	Type	Details	Number of parameters
1	Input Layer	50 x 50 RGB Image	
2	Normalisation layer	Input - its mean (channel wise)	
3	Convolutional	50 3x3 filters	
4	Activation	RelU activation	
5	Convolutional	50 3x3 filters	
6	Activation	RelU activation	
7	Maxpooling	2x2 region, stride of 1	
8	Activation	RelU activation	
9	Flattening operation		
10	Activation	RelU activation	
11	Fully connected	100 neurons	
12	Activation	RelU activation	
13	Fully connected	37 neurons	
14	Activation	Softmax activation	
		Total number of parameters	

Question 2: (10 marks)

For the network given in question 1, answer the following questions:

A. What will be the number of parameters, if the input became 40x40, instead of 50x50?

B. Which layers are redundant? Just write the layer numbers.

C. If the network is going to be used for an image classification task, what is the maximum number of classes in the dataset?

D. What may be changed to convert this network to do multi label classification?

Question 3: (10 marks)

Change the network detailed in Question 1 to still do classification for the same number of labels/classes, but this time without using any fully connected layers. Write you answer in a tabular form.