North South University

Department of Electrical and Computer Engineering

EEE660/CSE553/CSE468 - Computer Vision

Assignment - Summer 2021

Submission deadline: 11:59PM 17/09/2021 (Via Google Classroom)

Name:	
Student ID:	
Course:	
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 CMYK Image	0
2	Normalisation layer	Input - it's mean (channel-wise)	0
3	Convolutional	Concatenation of the response of: 13, 3x3 filters	$13 \times (3\times3\times4 + 1) = 481$
4	Activation	RelU activation	0
5	Convolutional	40, 1x1 filteres	$40 \times (1\times1\times13 + 1) = 560$
6	Activation	RelU activation	0
7	Maxpooling	2x2 region, stride of 3	0
8	Flattening		0
9	Fully connected	37 neurons, Activation - Sigmoid	$10240 \times 37 + 37 = 378917$
		Total number of parameters	379958

Question 2: (10 marks)

You have been introduced to Generative Adversarial Networks (GAN) in class. One possible issue with GANS is a behavior where the Generator generates samples that are very similar to each other. Your task is to propose a clear method that may alleviate this problem.