

CSC321: Assignment #4

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Problem 1

1. Implement the Discriminator of the DCGAN

- (a) Let P = number of padding, W = input width, K = kernel size, S = stride, O = output width

According to the structure of the convolutional network,

$$O = \frac{W}{2}$$

Using the formula for calculating output dimension

$$\begin{aligned} O &= \frac{W - K + 2P}{S} \\ P &= \frac{S(\frac{W}{2} - 1) + K - W}{2} \\ &= \frac{2(\frac{W}{2} - 1) + 4 - W}{2} \\ &= \frac{W - 2 + 4 - W}{2} \\ &= 1 \end{aligned}$$

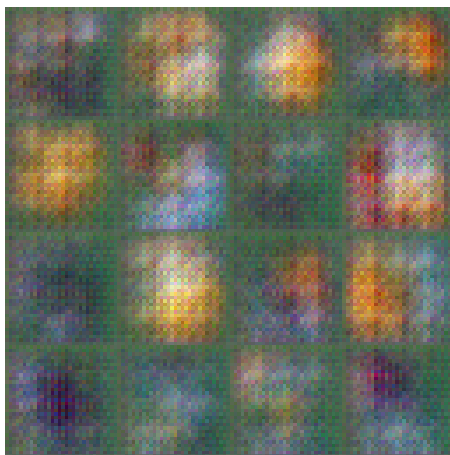
- (b) See implementation in models.py

2. Generator

See implementation in models.py

3. Experiment

sample from iteration 200 and 5000 are shown in Fig1. The sample improves in their resolution and quality. We can clearly see what each emoji is (human figure or objects)



(a) Sample from iteration 200



(b) Sample from iteration 5000

Figure 1

Problem 2

1. Generator
2. CycleGAN Training Loop
3. CycleGAN Experiments