Experiment Report

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1. Introduction

This Lab we will implement the conditional DDPM model to solve the problem that given condition and noise image to create the image that fit to the given condition.

2. Implementation details

- Choice of DDPM

  I choose the same DDPM with the paper that the teacher said in the class.

- Unet architectures

  The architecture is the same as the paper, but there is different in adding the condition in the begin of down sampling in the encoding time.

- Noise schedule

  Noise is random produced from gaussian distribution and add in original image.

- Loss function

  I use the MSE loss with truth noise image and the noise image that the DDPM predict.

- hyperparameters

epoch: 150

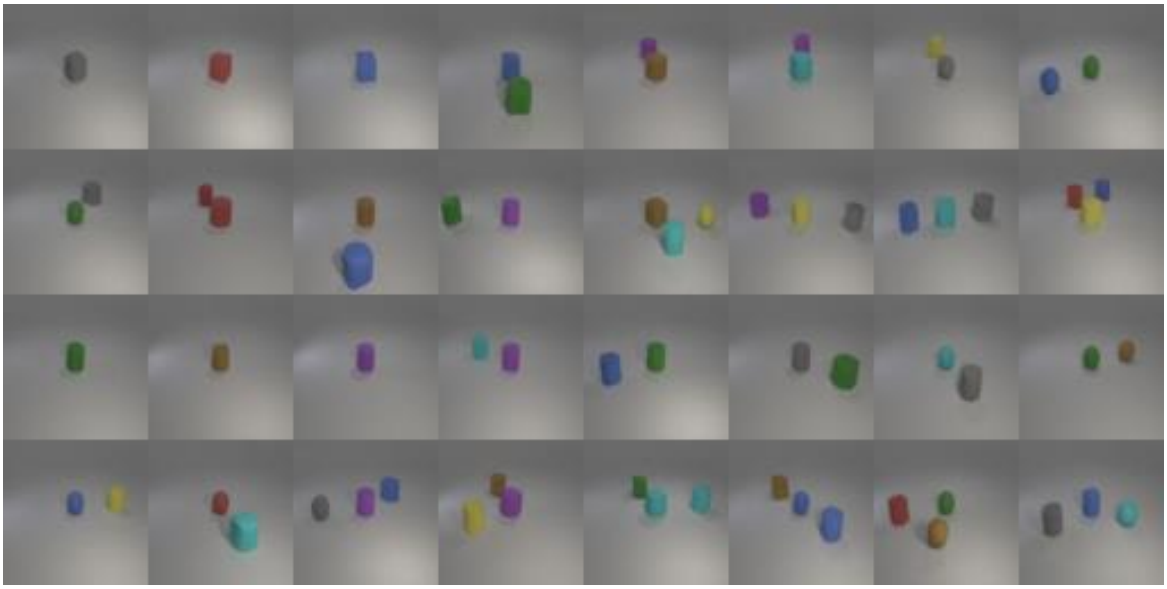
learning rate: 2e-5

3. Result and Discussion

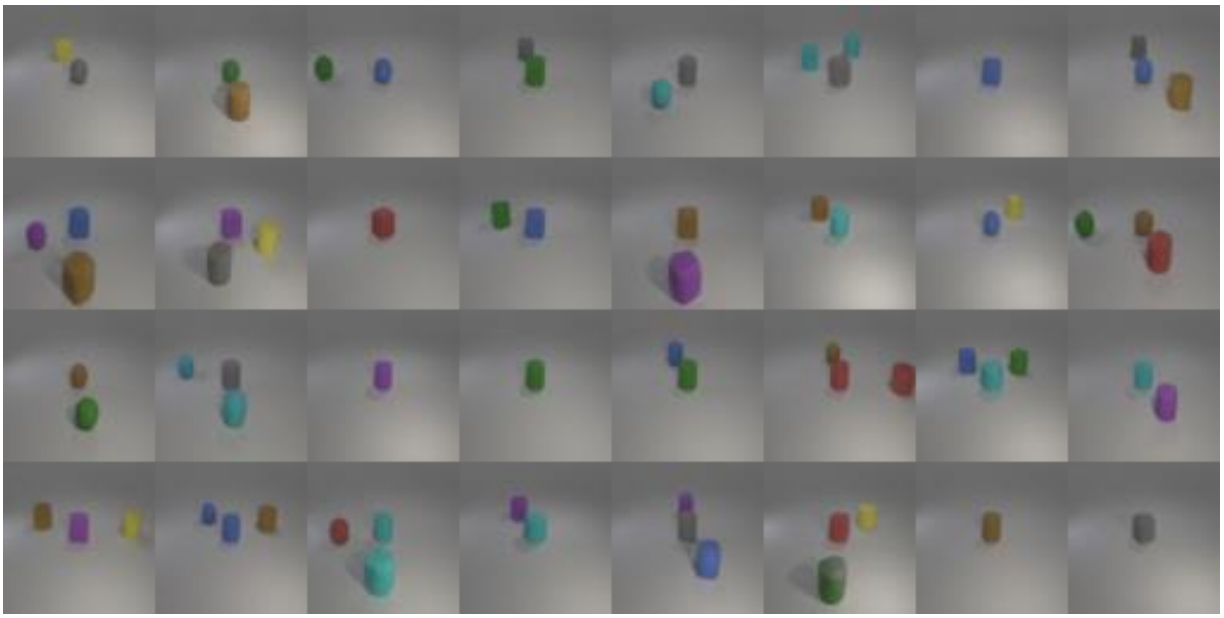
- Result

```
(DLP) C:\Users\weishon\Desktop\DeepLearning\lab07>python test.py
Model size:  58784003
100%|| 1000/1000 [00:42<00:00, 23.77it/s]
test acc :  0.1527777777777778
100%|| 1000/1000 [00:42<00:00, 23.80it/s]
new_test acc :  0.1527777777777778
```

Test:



New Test:



- Discussion

  I saw my result is fit to the test.json and new_test.json describe, but I didn’t get the good accuracy. I can’t understand the reason. I guess maybe I didn’t do the good model that can predict goo pictures or the evaluator is bad.