

HW3 Generative Models Report

Please attach the required figures in the following corresponding cells. After finishing this report, submit a PDF version of this file along with the hw3.ipynb file.

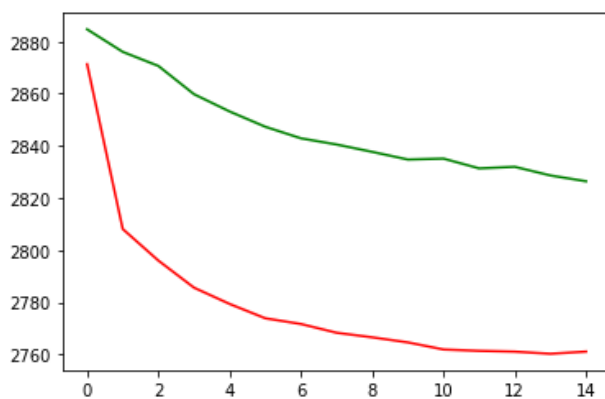
To attach a figure, use the syntax:

```

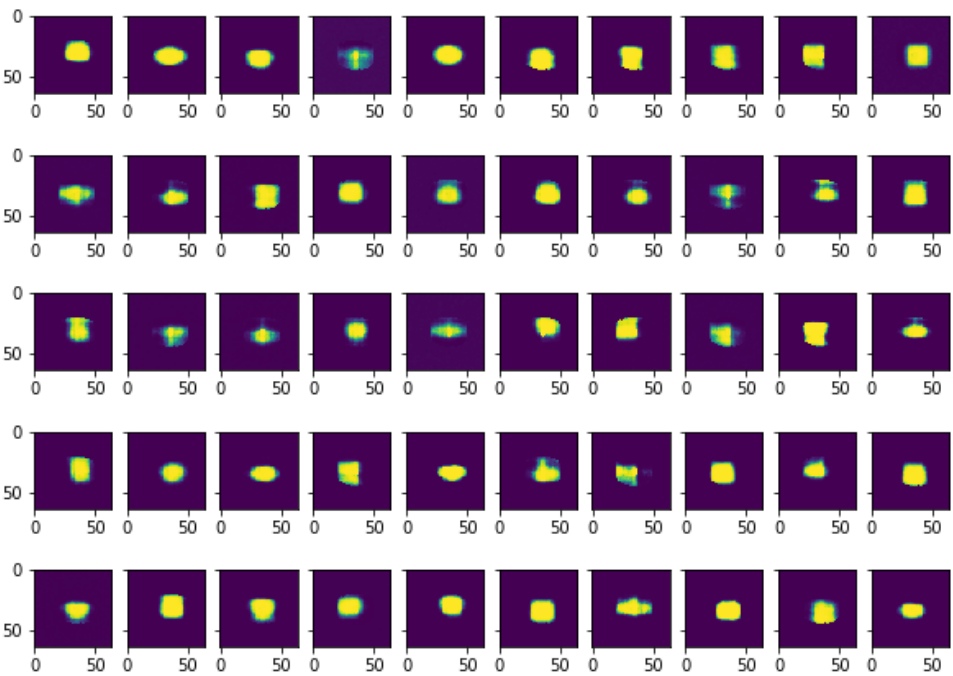
```

Task 1.1 Vanilla VAE

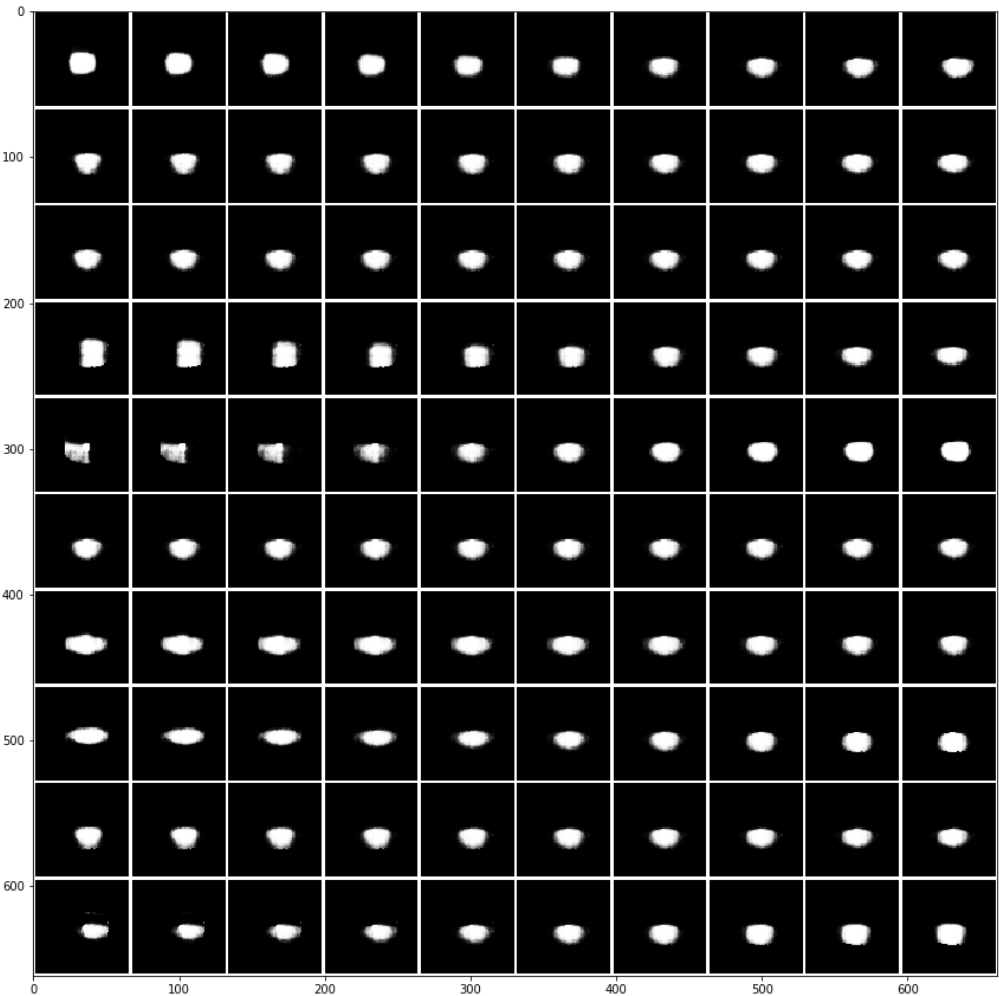
- Loss and NLL Curve



- Generation Samples



• Traversal Plots



Task 1.2 Beta-VAE

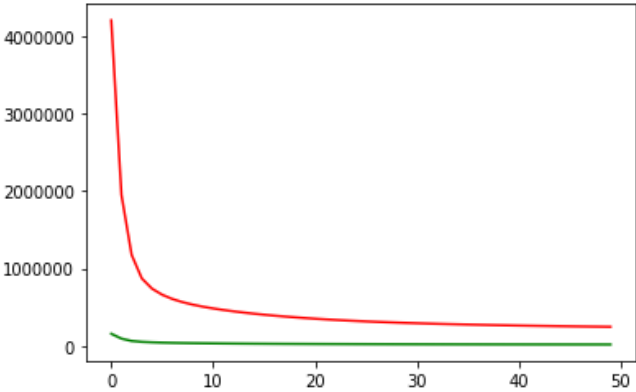
From observation on traversal plots, we summarize the sensitivity of our model on different characteristic.

This is shown in the following table.

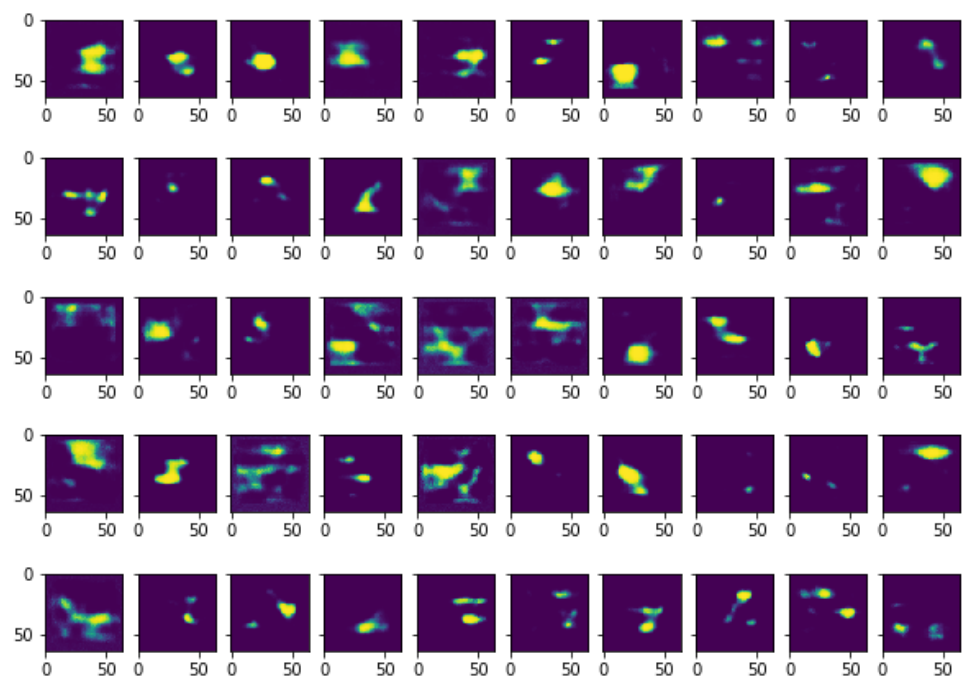
Based on it, the model achieves the best performance when beta vallue is equal to 0.2.

Beta	0.2	0.4	0.6	0.8	1.0
Pos X	mid	low	mid	mid	mid
-----	-----	-----	-----	-----	-----
Pos Y	mid	low	high	mid	high
-----	-----	-----	-----	-----	-----
Shape	high	high	high	high	low
-----	-----	-----	-----	-----	-----
Scale	high	high	high	mid	high

• Loss and NLL Curve

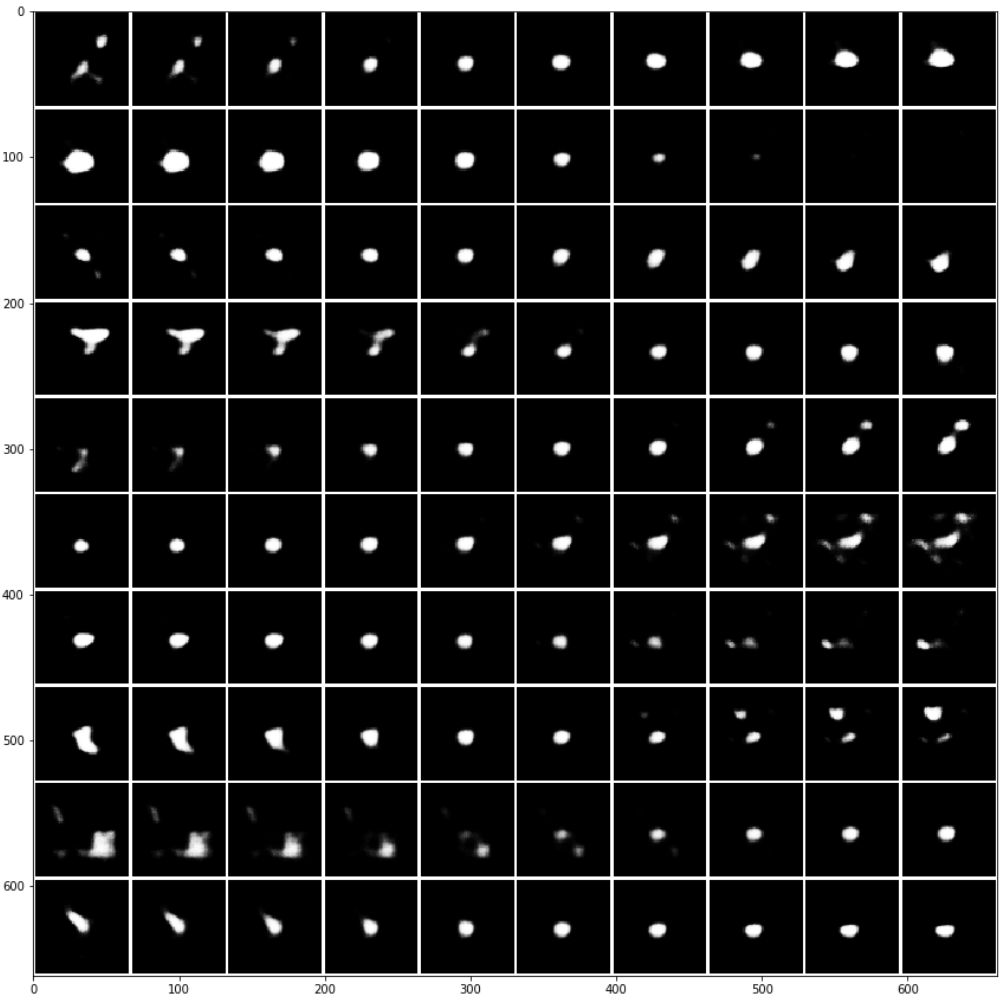


• Generation Samples



- Traversal Plots
 - The relation between the latent feature of our model and generative factors are shown in the following table.
 - For example, from the table, we know the 5th and 7th latent feature are sensitive to the Pros X.

	Beta	0.6
Pos X	5,7	
-----	-----	
Pos Y	1,5,6	
-----	-----	
Shape	4,8,9	
-----	-----	
Scale	2,8	



In []: