TRAINING REPORT

Bauhaus to Non-Bauhaus Architecture and Vice-Versa

Common To All Experiments

- Set A – 100 Bauhaus Images (museums dataset)
- Set B – 100 Non-Bauhaus style images (Churches, Indian monuments, Chinese architecture, Greek Architecture, Egyptian architecture, Middle-eastern Mosques , Modern and Trendy buildings)
- CycleGan network for training

Image Samples from Train A and Train B

Train A




Train B

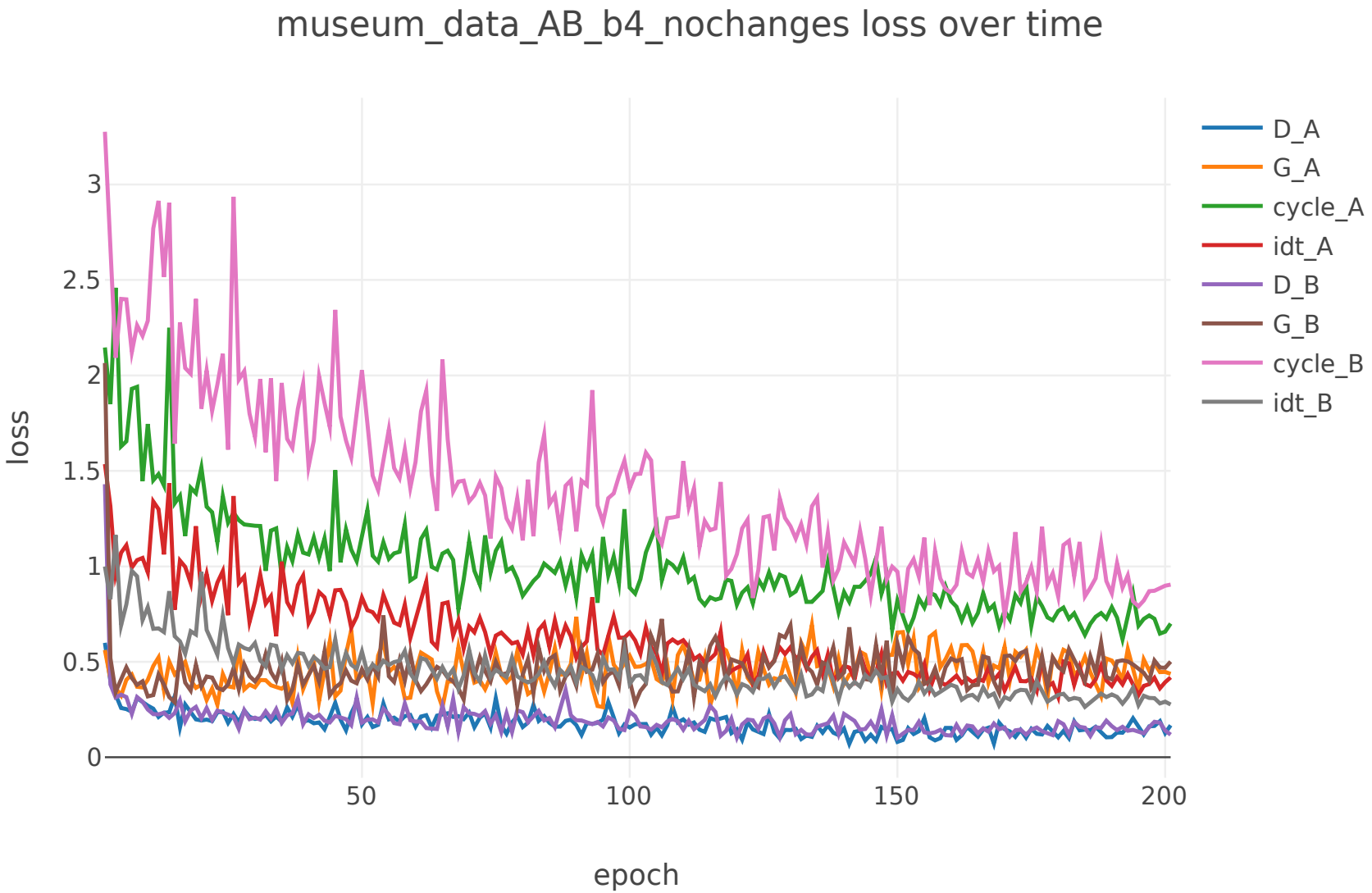



List of Strategies

1. Direction A to B , batch_size 4 , number of epochs : 100 , number of epoch decays : 100 , instance norm
2. Direction A to B , batch_size 1 , number of epochs : 100 , number of epoch decays : 100, batch norm (train and re-train)
3. Direction A to B , batch_size 1 , number of epochs : 300 , number of epoch decays : 600, batch norm
4. Direction B to A , batch_size 1 , number of epochs: 100 , number of epoch decays : 100, batch norm (same as strategy 2 , but in direction B->A)

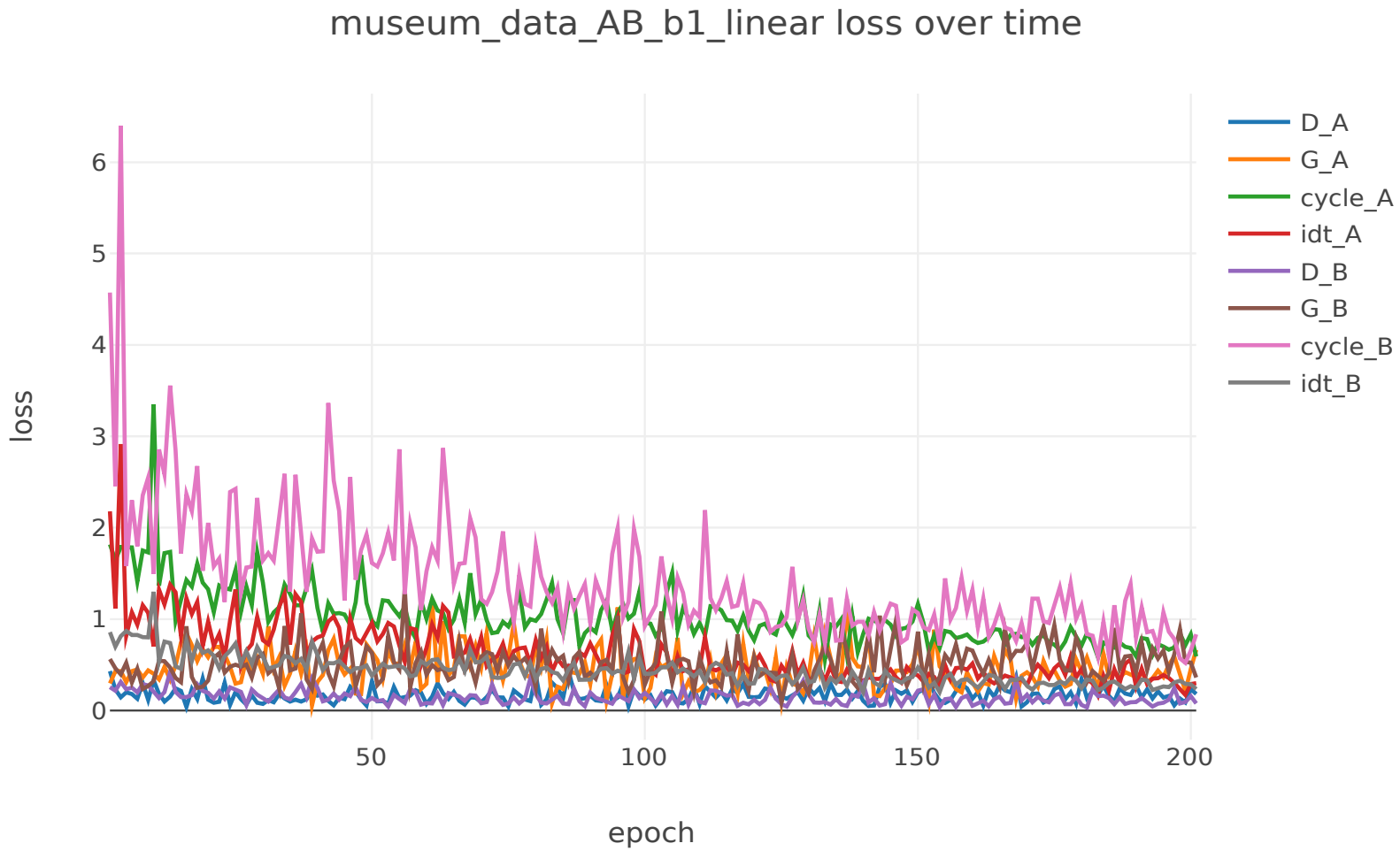
Strategy 1 graph Synopsis

- Direction A to B , batch_size 4 , number of epochs : 100 , epoch decays : 100 , norm: instance



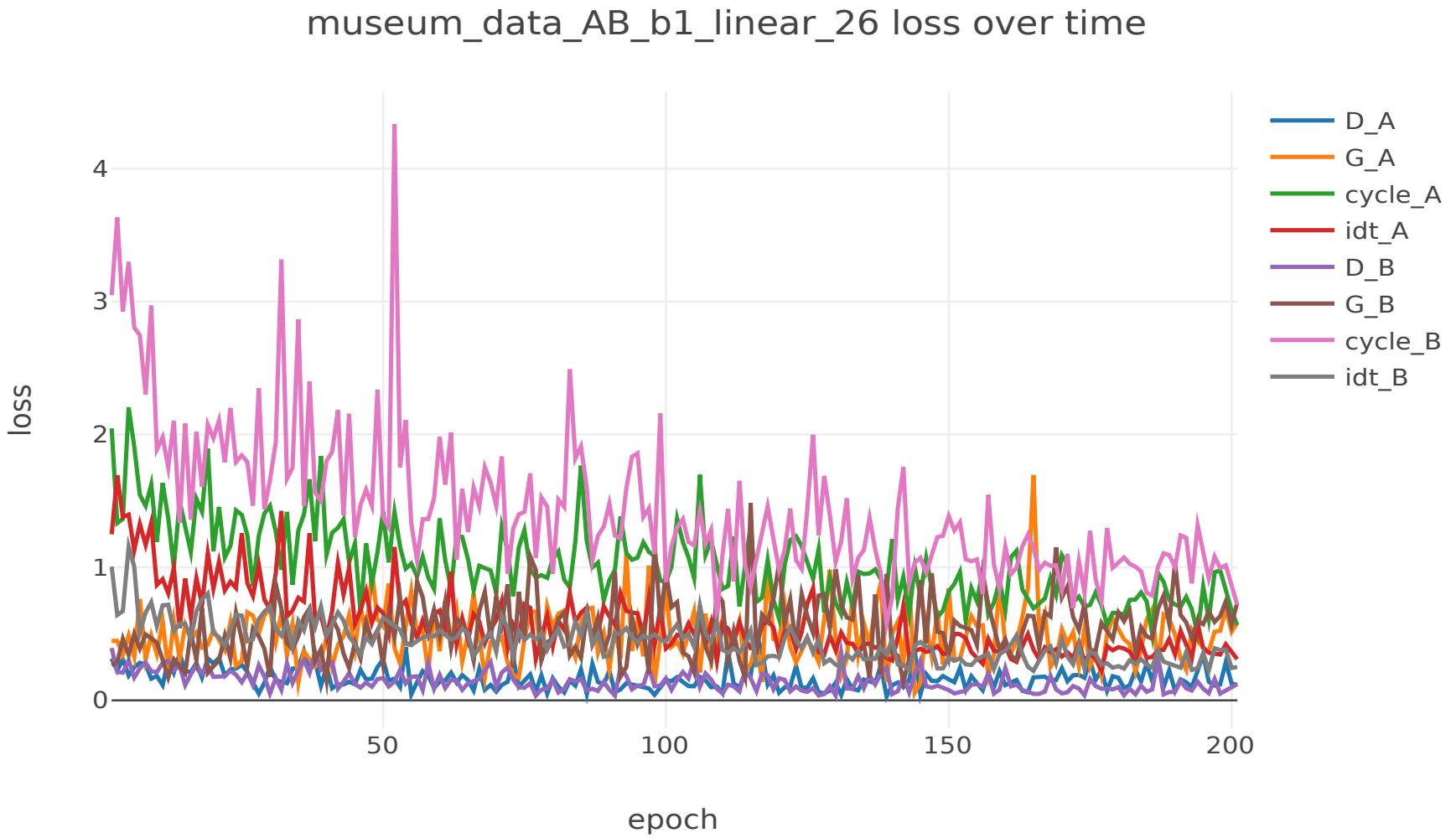
Strategy 2 graph Synopsis

- Direction A to B , batch_size 1 , number of epochs : 100 , number of epoch decays : 100, batch norm (train)



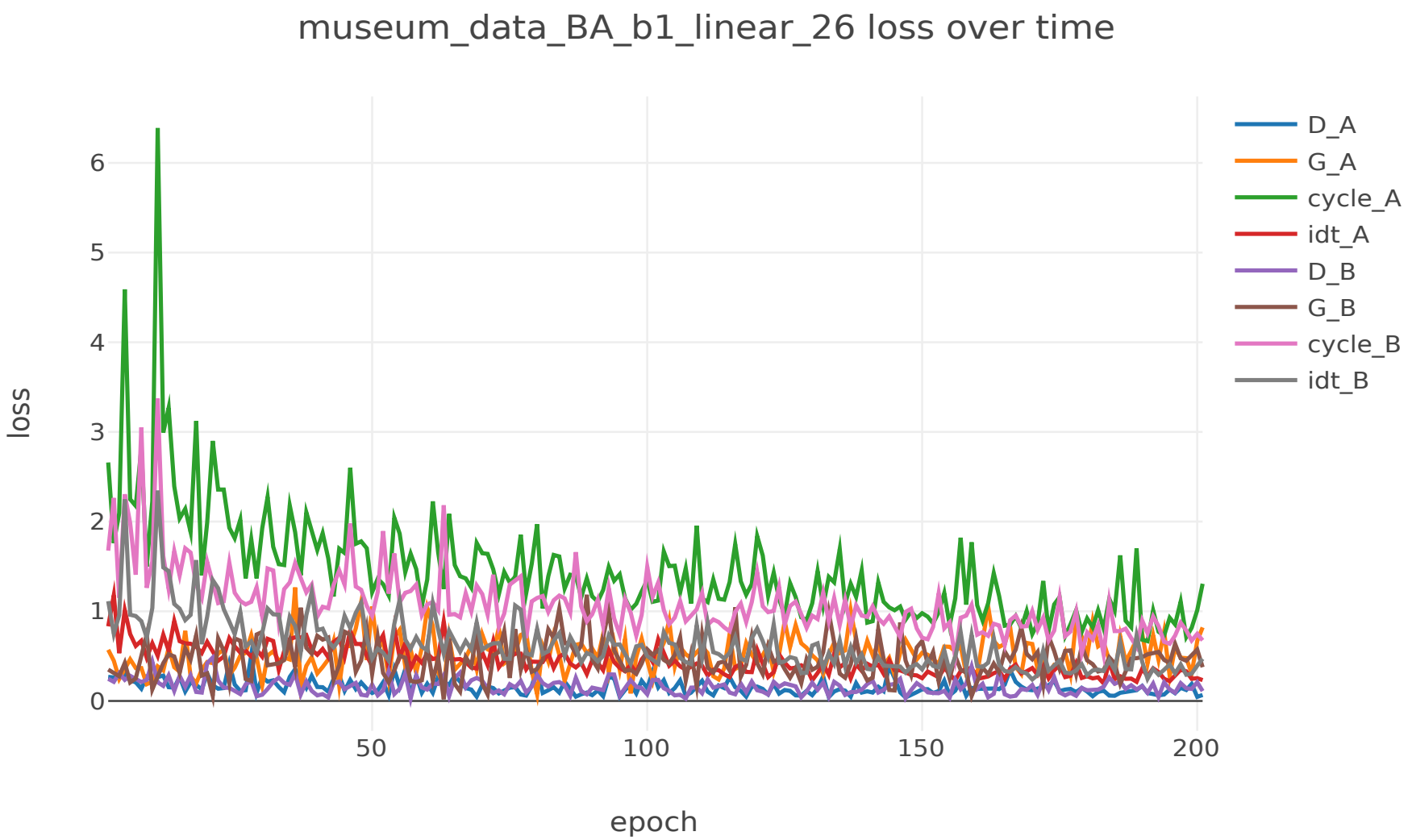
Strategy 2 graph Synopsis

- Direction A to B , batch_size 1 , number of epochs : 100 , number of epoch decays : 100, batch norm (re-train)



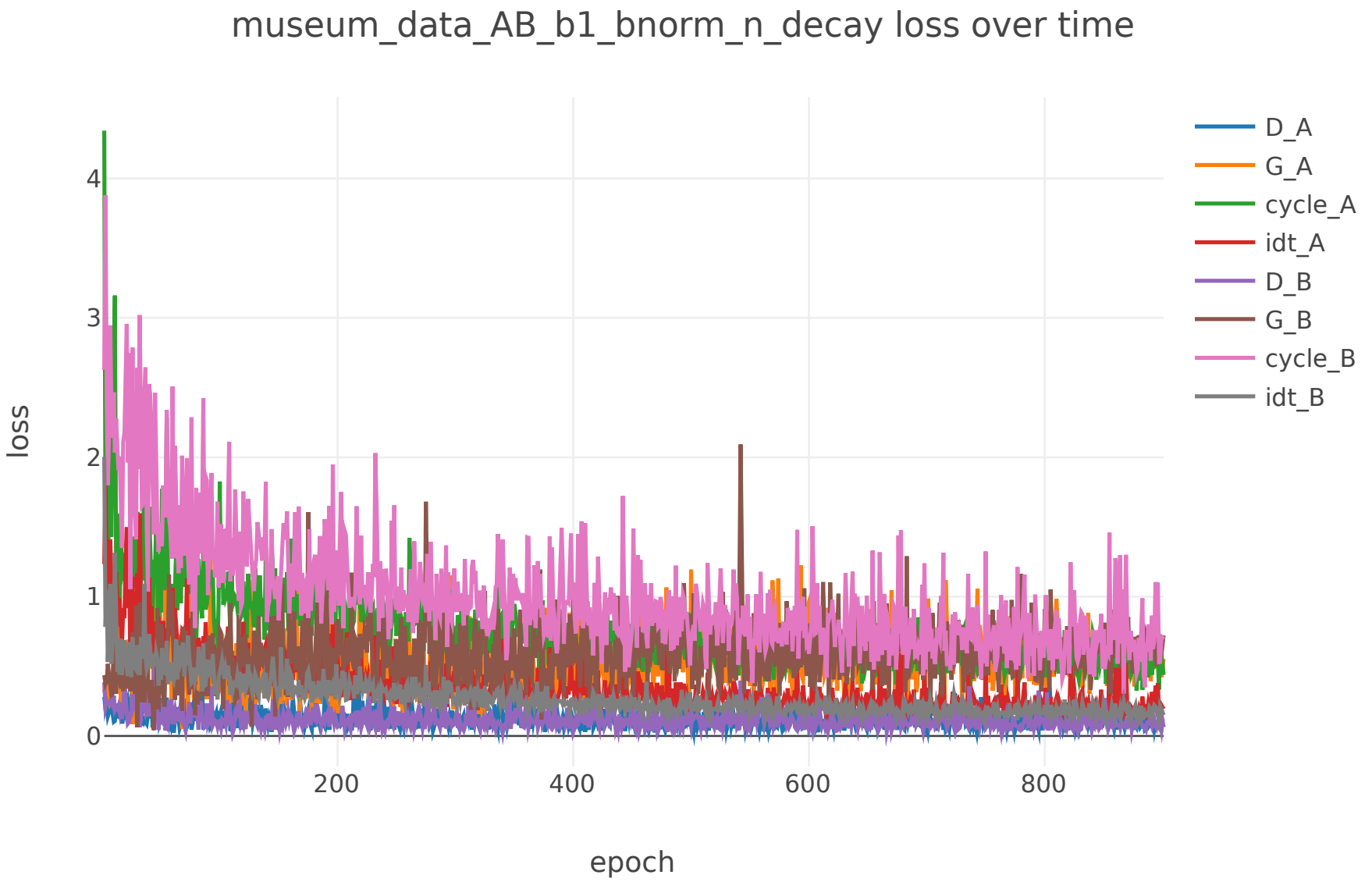
Strategy 2 graph Synopsis

- Direction B to A , batch_size 1 , number of epochs: 100 , number of epoch decays : 100, batch norm



Strategy 3 graph Synopsis

- Direction A to B , batch_size 1 , number of epochs : 300 , number of epoch decays : 600, batch norm



Comparison Between Two Selected Models

After analyzing the graphs of all four strategies, the following comparisons were drawn-

1) Using strategy 2, there is a significantly low initial loss value (4.5 for train and 3 for re-train) as well as overall decrease for all losses over epoch.

- It can also be noted that the maximum values for losses is significantly low (around 6.2 for train and 4.3 for re-train).
- However, here , the total number of epochs over which training is carried out is only 100.

1) Using strategy 3 , there is a maximum occurances of sharp crests and troughs (loss/epoch) for the overall epochs .

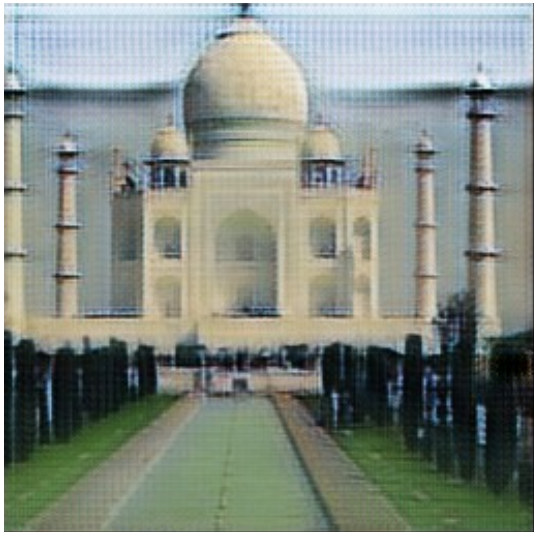
- Here , the number of epochs is taken as 300 , number of epoch decays is 600 , so the network gets much more time to train over the same set of images.

Pictorial Comparisons Between the Selected Strategies

- **Strategy 2 : B (Non-Bauhaus) →A (Bauhaus) trained Images**

Set B (Real Image)

→



Set A (generated image)

Input image from Set A for training

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Input image from Set A for training

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Input image from Set A for training

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Set B (Real Image)

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Set A (generated image)

Input image from Set A for training

Pictorial Comparisons Between the Selected Strategies

- **Strategy 2 : A (Bauhaus) →B (Non-Bauhaus) Re-trained Images**

Set A (Real Image)

→

Set B (generated image)

Input image from Set B for training

Pictorial Comparisons Between the Selected Strategies

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Set A (Real Image)

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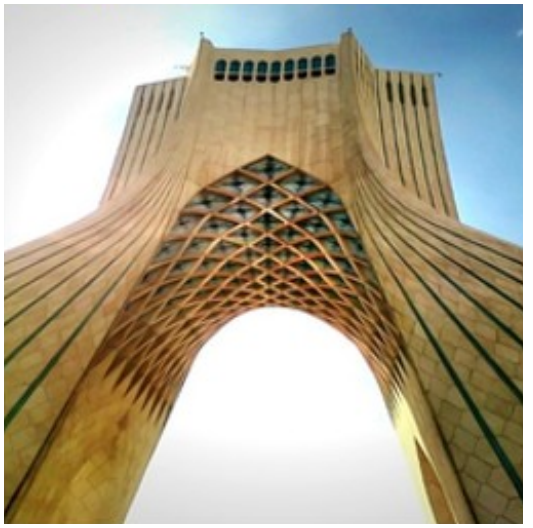
Set B (generated image)



Input image from Set B for training

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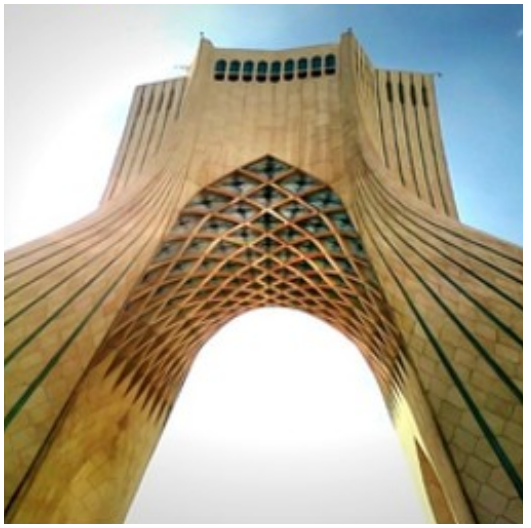
Set B (generated image)



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Set A (Real Image)

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Set B (generated image)

Input image from Set B for training

Further ..

- It might be a good idea to try out something similar in the lines of strategy3 , for direction B→A .
- This is so because, some of the Bauhaus style buildings have been attempted by the training network (A→B) to at least acquire a shape and structure similar to some temples / other monuments fed as training data set.