
DL Project Presentation

— Text to Image Synthesis —

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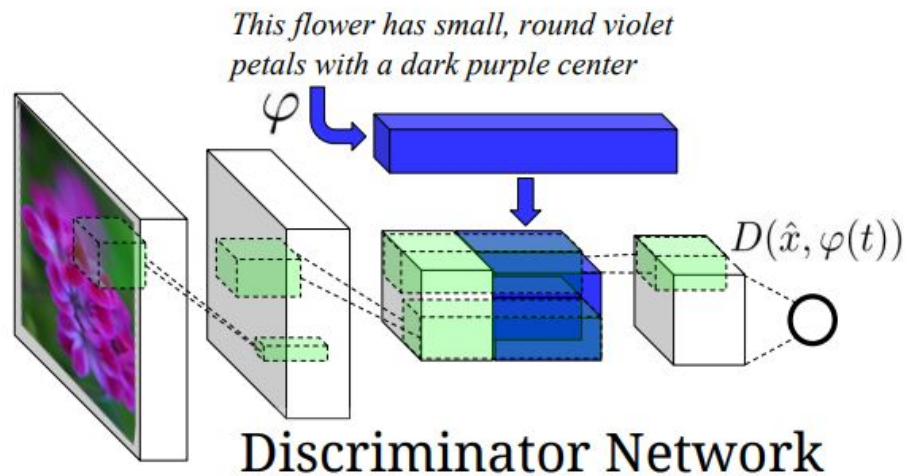
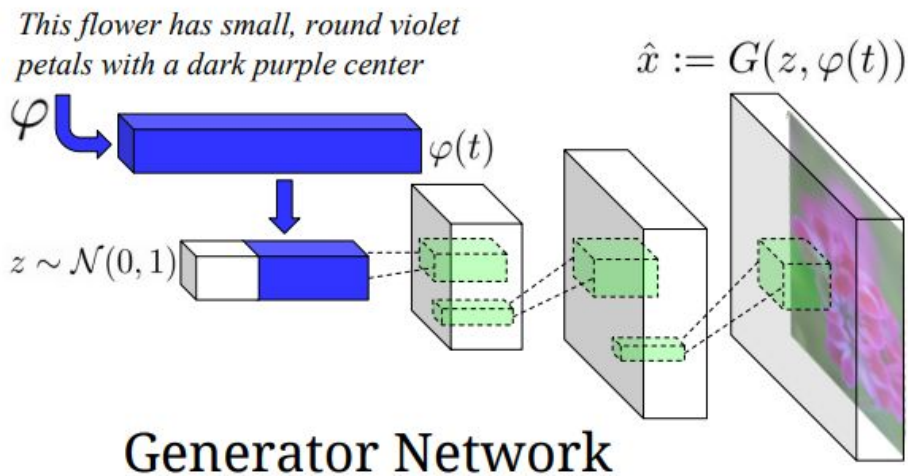
Problem Statement

1. Generating photo-realistic images from text
 - a. Synthesizing high-quality images from text descriptions is a challenging problem in computer vision.
 - b. Maintaining the images realistic while still capturing the semantics is a challenge

State of the Art

S. Reed, Z. Akata, X. Yan, and L. Logeswaran, “Generative Adversarial Text to Image Synthesis,” ICML, 2016.

1. The paper talks about training a deep convolutional generative adversarial network (DC-GAN) conditioned on text features.
2. Text features are encoded by a hybrid CRNN



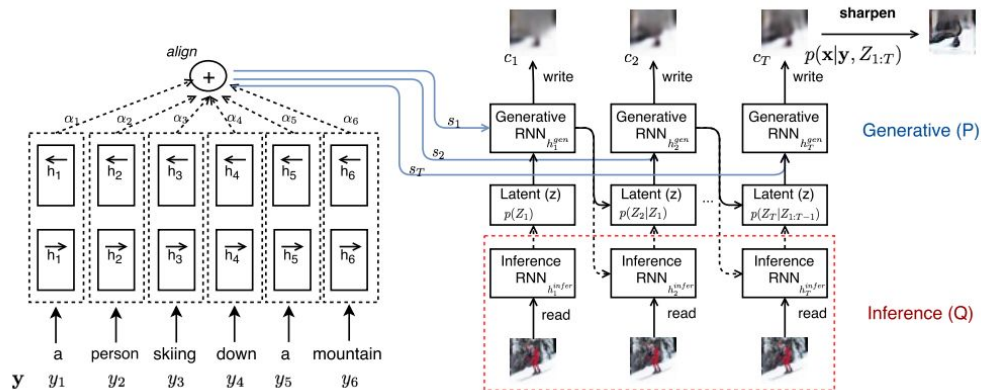
Summary of work till Interim

Elman Mansimov, Emilio Parisotto, Jimmy Lei Ba & Ruslan Salakhutdinov, "GENERATING IMAGES FROM CAPTIONS WITH ATTENTION, ICLR 2016.

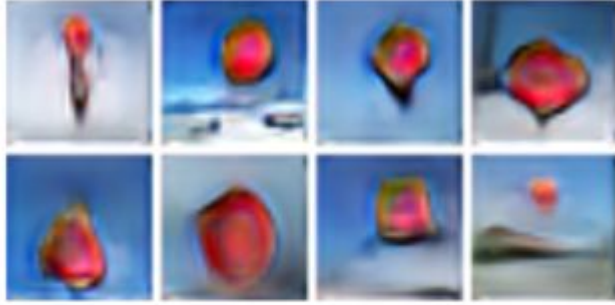
1. The proposed model iteratively draws patches on a canvas, while attending to the relevant words in the description.

2. The caption is encoded

using the Bidirectional RNN



Results and Feedback



A stop sign is flying in blue skies.



A herd of elephants flying in the blue skies.

Feedback:-

To include the plot of losses of discriminator and generator to see whether the model is trained or not.

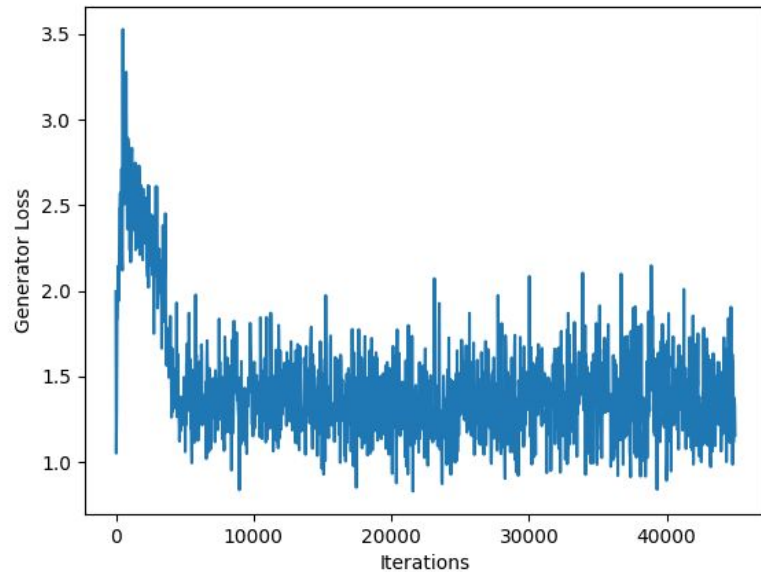
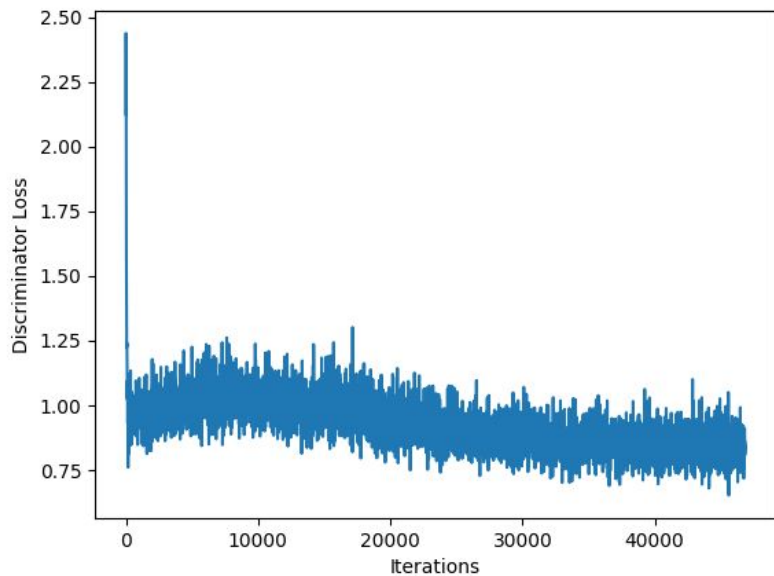


A toilet seat sits open in the grass field.

Work after Interim

1. Different text encoding networks
 - a. Hybrid CNN-RNN architecture
 - b. Sent2Vec
2. Add techniques to facilitate GAN training
3. Train on CUB and Oxford-102 dataset

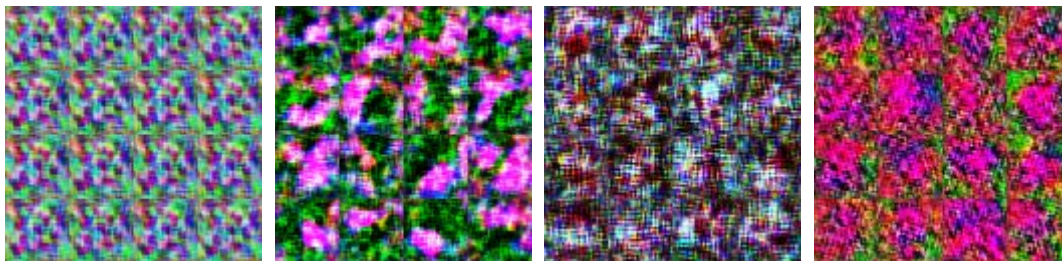
Results and Analysis



Results and Analysis

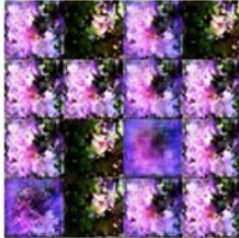
Training

Pink flowers



Results and Analysis

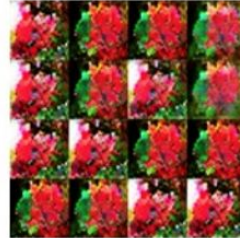
This is a flower with white petals and purple and white anthers.



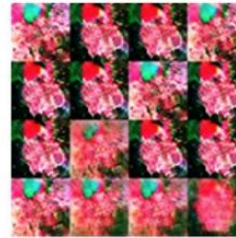
The petals of the flower are maroon in colour and have green leaves.



This flower has petals that are pink and has yellow stamen



This flower is pink in colour, and has petals that are curled upward.



This flower is yellow and white in colour, with petals that are pointed at the tips.



Results and Analysis



Blue bird is sitting on a tree



White bird with short beak is sitting.



Bird with long beak



Tiny green bird

Future Work and Individual Contributions

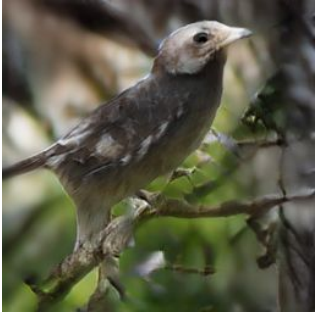
Introduce attention while learning textual encodings to generate better representations.

Akhil : Training the CUB dataset

Astha : Training the Oxford-102 dataset

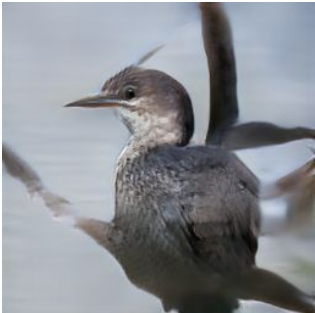
THANK YOU

Results and Analysis



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