

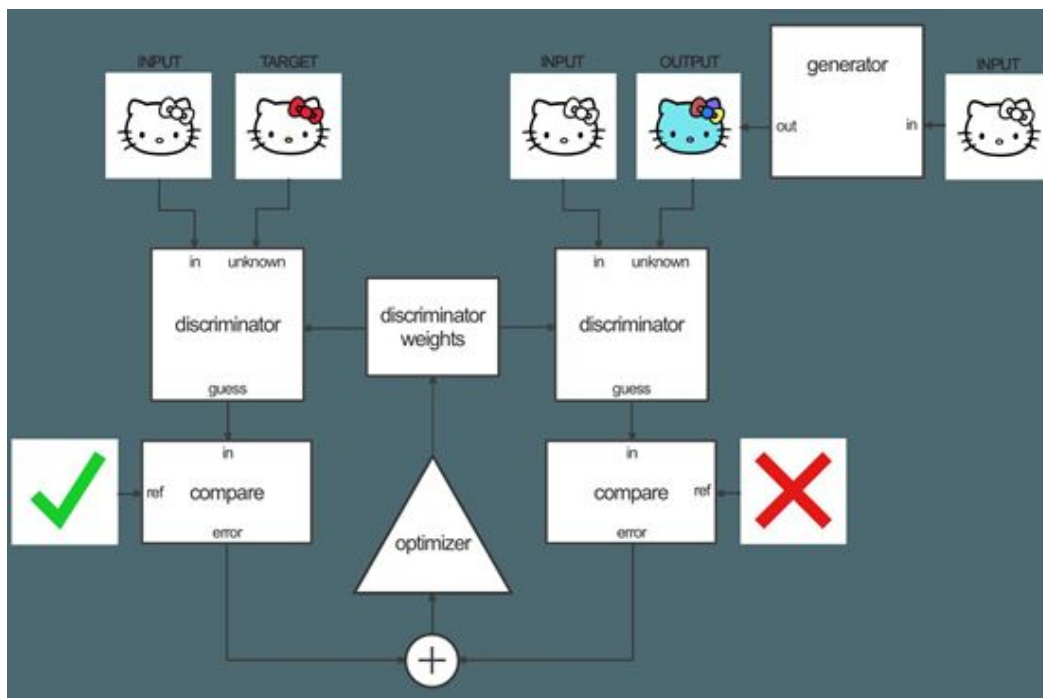
# Text to Image Synthesis with Generative Adversarial Networks (GAN)

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## Overview

Automatic synthesis of images from text is an interesting and useful topic. With deep convolutional generative adversarial networks (GAN) and its families there has been several realization in different level.

Generally speaking, GAN is composed of two networks: the generator and the discriminator. The generator generates new stuff and passes them to the discriminator; the discriminator identifies if the one is fake.



## Goals

Our work is to generate different style of images such as realistic or cartoon from one or two sentences describing how the pictures look like. Here is an example:

this small bird has a pink breast and crown, and black primaries and secondaries.



this magnificent fellow is almost all black with a red crest, and white cheek patch.



the flower has petals that are bright pinkish purple with white stigma



this white and yellow flower have thin white petals and a round yellow stamen



We plan to try some different GANs:

- 1) DC-GAN
- 2) GAWWN (Generative Adversarial What-Where Network)
- 3) StackGAN

## Use Cases

- Accelerating the performance of image search engines.
- Artistic materials for superflat artists.
- Evaluation metrics for Object Detection Models.

## Data

Image Data:

<http://www.robots.ox.ac.uk/~vgg/data/flowers/102/102flowers.tgz>

<https://www.kaggle.com/c/quickdraw-doodle-recognition>

Descriptive Text Data:

<https://drive.google.com/file/d/0B0ywwgffWnLLcms2WWJQRFNSWXM/>

## Milestones

Timeframe	Delivery
Day 1-2	Data Preprocessing and Exploratory Data Analysis
Day 3-6	Model Building, Training, Selection
Day 7-8	Deployment of models on cloud and build web application
Day 9-10	System integration and documentation

## Deployment Details

- 1) Language: Python
- 2) Model Framework: Keras/TensorFlow
- 3) Web Framework: Flask
- 4) Database: MongoDB
- 5) Cloud: AWS

## USER INTERFACE DESIGN

# Text to Image Synthesis with Generative Adversarial Networks (GAN)

Please type your description:

SUBMIT

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## Reference and Sources:

<https://github.com/dashayushman/TAC-GAN>

<https://arxiv.org/pdf/1703.06412.pdf>

<http://www.scottreed.info/files/nips2016.pdf>

<https://arxiv.org/pdf/1605.05396.pdf>