Image to Image transformation (few samples) using VAE, GANs etc

Computer Vision (CS6350)
TPA - 13

1. Problem Statement

Models trained on high-quality (DSLR) images may underperform when tested on low-quality (USB-cam) images.

One way to tackle this problem is to train an image-to-image translation (VAE or GAN based) model for domain adaptation that can transform the quality of the input image. This model can then be used to transform test time images such that they are of the same quality as train time images.

Concretely, the goal of this TPA is to train an image-to-image translation model that can translate high-quality (DSLR) images into (USB-cam) low-quality images having the same dimensions (height and width) and/or model that can translate low-quality images into high-quality images.

2. Input

Single RGB image (DSLR or USB-cam).

3. Output

Quality (DSLR-to-USB and/or USB-to-DSLR) translated RGB image having the same dimensions as the input image (height and width).

4. Dataset

In-house VPLab DA dataset:
3560 pairs of DSLR and USB-cam images.
DSLR image and the corresponding USB-cam image may or may not have the exact same view field.

Example scenes

DSLR

USB

DSLR

USB

5. References

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