# IMAGE COLORIZATION

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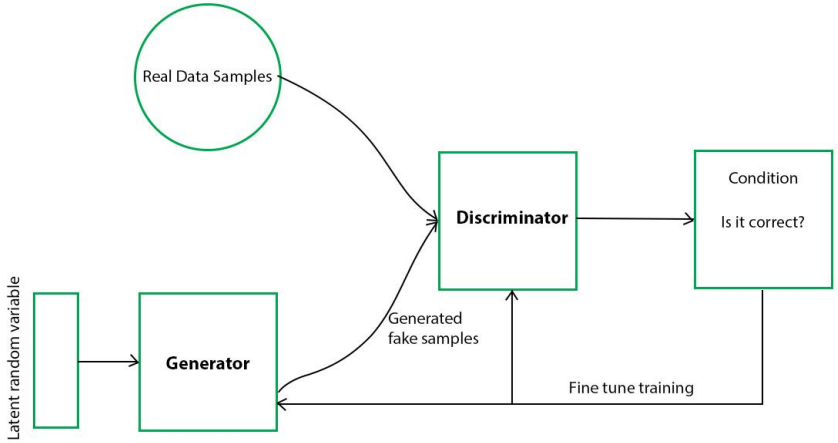
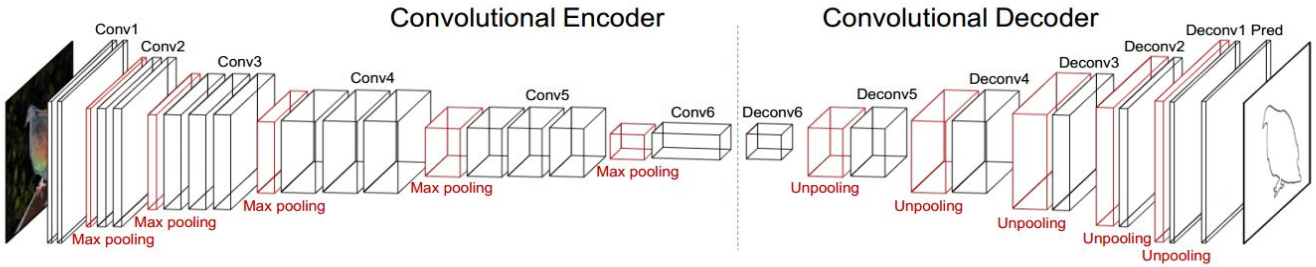
# Contents

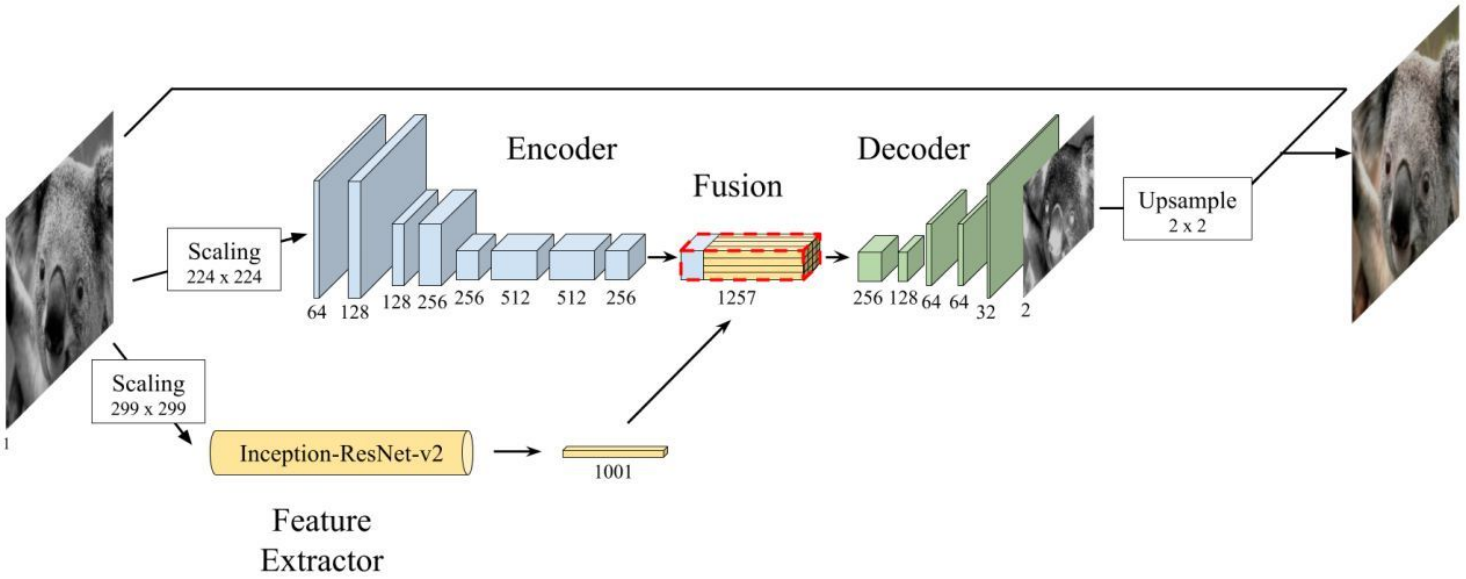
# Introduction

- What is Image Colorization ?
- Possible problem scenarios
- Different architectures



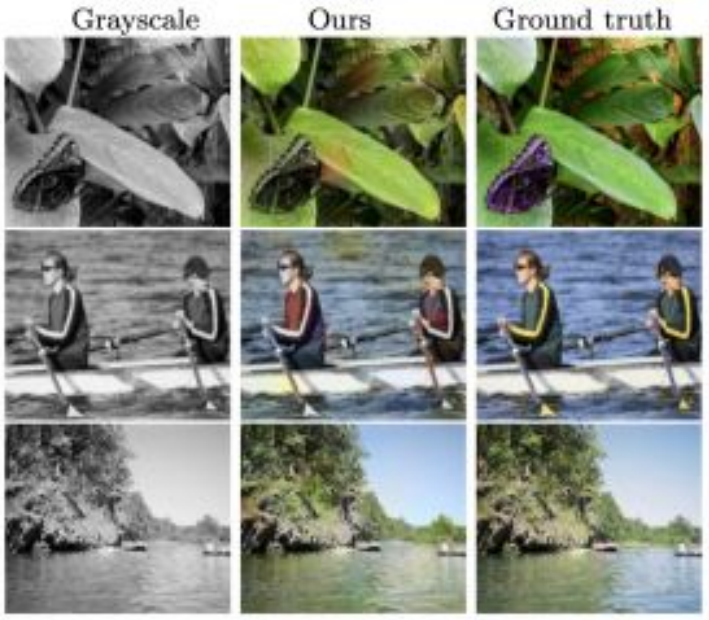



# Image Colorization using CNNs and Inception-Resnet-v2:



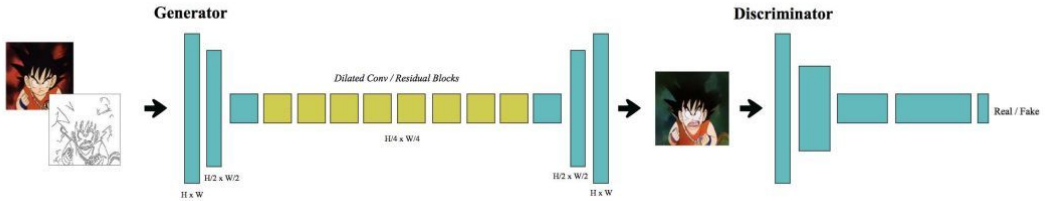
# Image Colorization using CNNs and Inception-Resnet-v2:

- Mapping L* to a*b*
- Pre-trained model used



# Automatic Temporally Coherent Video Colorization:

- Convert Grayscale or line sketch images to colorized images using pervious coloured image.
- Using a U-net based GAN(Baseline).
- Use Style Loss, Content Loss, L1 Loss, etc.



# Automatic Temporally Coherent Video Colorization:

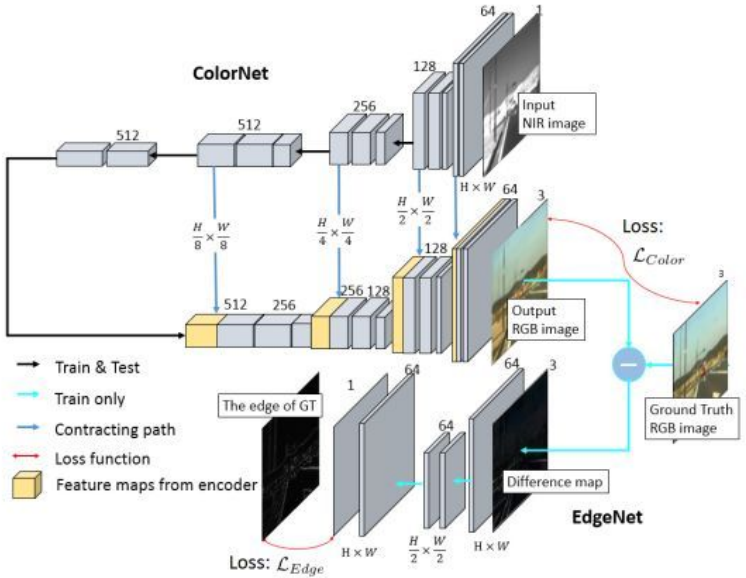
- Effect of Losses

(a) Greyscale (b) Baseline (c) Ours

- When any new character is introduced
- Repetition of  incorrect colourization

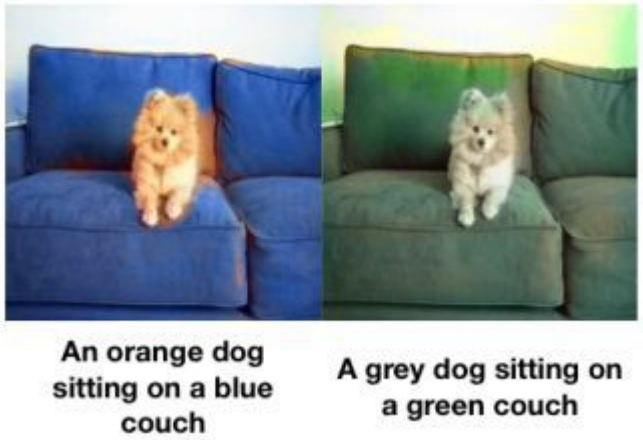
# Infrared Image Colourization Using an S-Shape Network:

- Architecture
  - ColorNet
  - EdgeNet

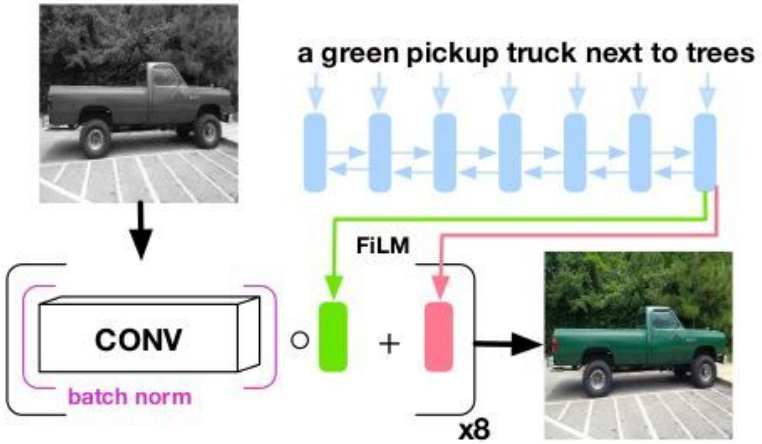


# Learning To Color From Language:

- Benefits of using caption for colourization




Example



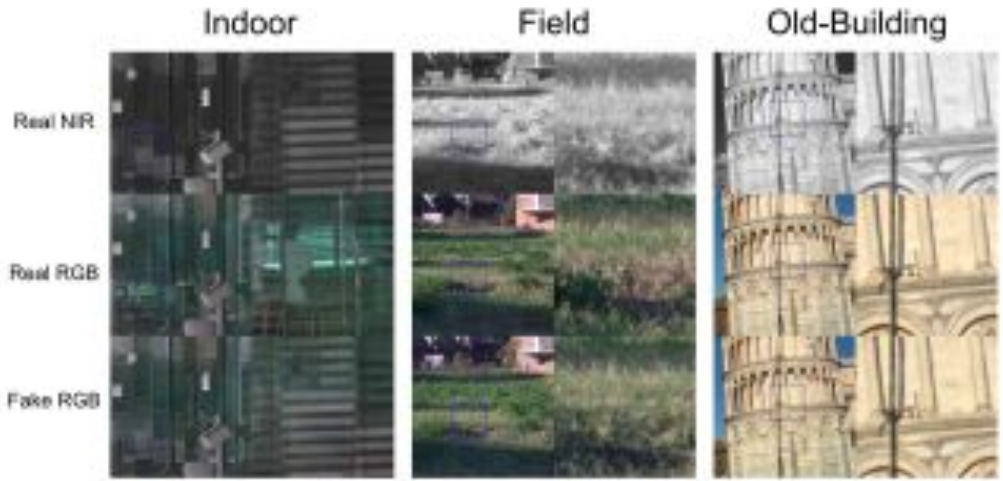

Architecture

# Learning To Color From Language:

- Limitation
- Scope of Improvement

# NIR to RGB Domain Translation Using Asymmetric Cycle GAN:

- NIR to RGB Conversion
- Use of  Asymmetric Cyclic GAN



# NIR to RGB Domain Translation Using Asymmetric Cycle GAN:

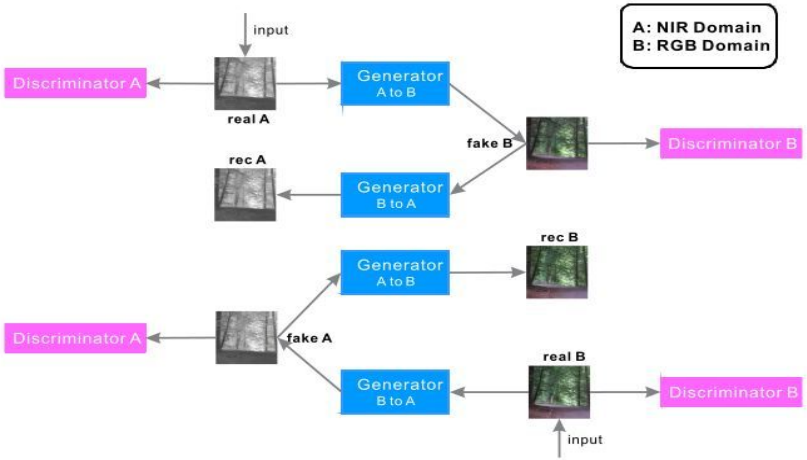
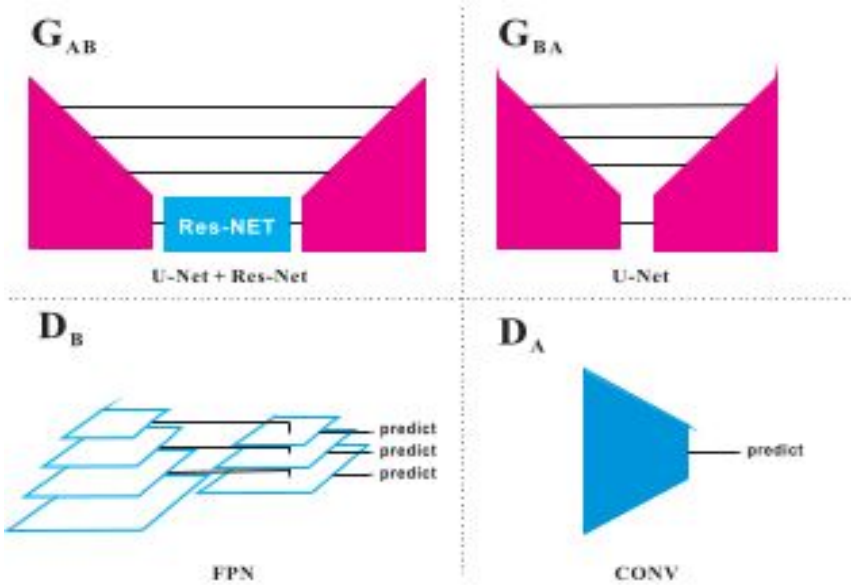



FIGURE 1. NIR to RGB domain translation using asymmetric cycle GAN, redrawn from [14]. Single directional model often calculates $L_1$ norm $L(fake\ B, real\ B)$ as training loss. When *real A* is not registered with *real B*, the training loss is confused by unregistration but the cyclic loss $L(real\ A, F(G(real\ A)))$ is unaffected by unregistration.



# Near-Infrared Imagery Colorization:

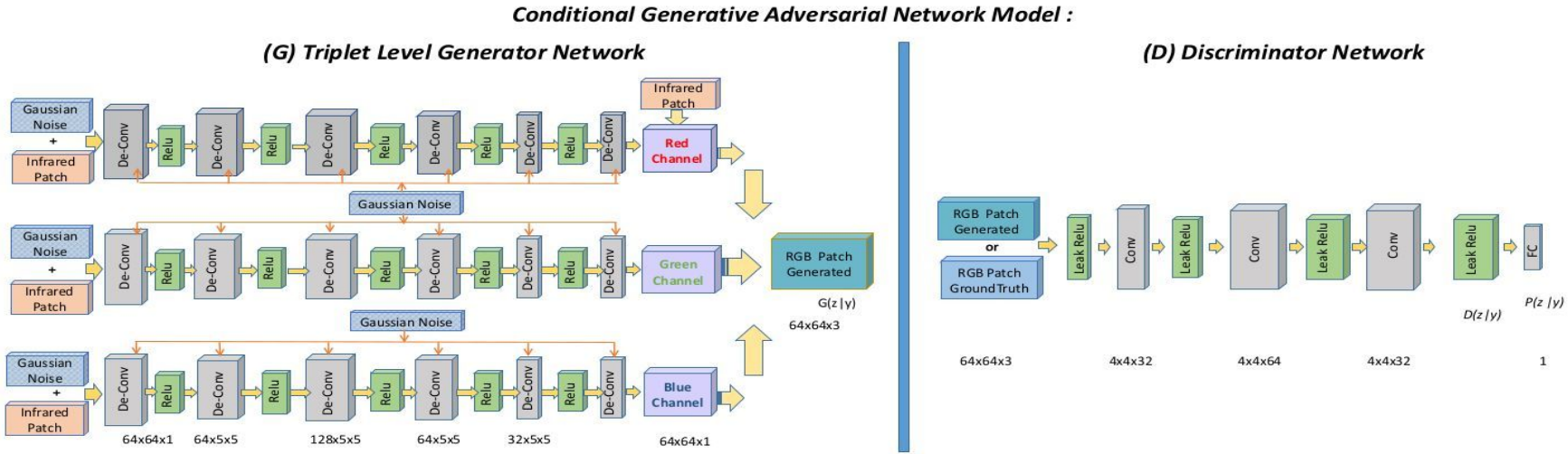



Fig. 1. Illustration of the proposed triplet GAN architecture used for NIR image colorization.