

# Abstract

Generative adversarial networks have shown state of the art performance in natural image generation, however they are difficult to train and cannot always generate convincing samples for a given data-set. We introduce a modified discriminator loss function utilizing the properties of hinge loss for generative adversarial networks, and integrate work on moment matching and style-transfer to introduce a new generator loss function for generative adversarial networks. Both of these new loss functions are used for full image generation. Further, in our study of generative adversarial networks we introduce a new architecture for coloring gray-scale photographs using residual networks consisting of dilated convolution operations.