Abstract

Super-Resolution is a classic problem in computer vision and many methods have been designed to reconstruct the high-resolution image from low-resolution image. Recent solution of such problem is based on the convolutional neural network where mapping function is used to map low-resolution image to high-resolution image based on per-pixel loss or mean-square error. We introduce a framework that uses perceptual loss function and provides much finer results with high improvement in speed. This framework also replaces the bicubic interpolation for upscaling image with the sub-pixel convolutional layer that learns upscaling filters to upscale the low-resolution feature map to the high-resolution image, that leads less computational complexity. The Proposed method also deals with high upscale factor, by the introduction of an adversarial network that helps in recovering finer texture details in a low-resolution image.

References

International Conference on Computer Vision (ICCV).


Index Terms

Computer Science

Image Processing

Keywords

Super-resolution, deep learning, convolutional neural network, perceptual loss, adversarial network, sub-pixel convolutional layer.