Image Quality Assessment Assisted GANs For Single Image Super-Resolution

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ABSTRACT

Deep Generative Adversarial Networks (GANs) have led to development of Single Image Super Resolution (SISR) methods that allow generating photorealistic and perceptually pleasant images. However, these generated images often have undesirable distortions and artifacts. This works aims to develop a GAN that achieves SISR by generating images that not only are perceptually pleasant but also void of the undesirable distortions and artifacts. This is achieved by the linear combination of various image quality assessment metrics and training a GAN using that combination as the loss function for the generator of the network. The images generated by this consistently scores well on wide varieties of image quality assessment metrics. And achieve results comparable to various state-of-the-art algorithms even on a relatively small (by modern standards) network architecture and very low training time of only a couple of hours.