

Paper Introduction: Context Encoder: feature learning by inpainting^[1]

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Abstract:

Image inpainting^[2] is a process of reconstructing missing parts of an image so that observers are unable to tell that these regions have undergone restoration. This technique is often used for removing unwanted objects from an image or to restore damaged portions of old photos.

The paper titled “Context Encoders: Feature Learning by Inpainting”^[1] introduces an unsupervised visual feature learning algorithm driven by context-based pixel prediction. Context Encoders, which co-operate AE^[3] and GAN^[4] for training to generate the contents of an arbitrary image region conditioned on its surroundings. It needs to both understand the content of the entire image, as well as to produce a plausible hypothesis for the missing part(s). In order to decouple this burden, this paper propose the loss function by jointly training our context encoders to minimize both a reconstruction loss and an adversarial loss.

Unfortunately, this Adversarial algorithm often creates boundary artifacts, distorted structures and blurry textures inconsistent with surrounding areas which is likely due to ineffectiveness of convolutional neural networks in modeling long-term correlations between distant contextual information and the hole regions. Thus, in my future work, I want to optimize the neural network structure and the loss function for improving the training stability and visual quality

Keywords:

Generative Adversarial Network(GAN), autoencoder(AE), image inpainting

Conferences:

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