Unsupervised Images Generation Based on Sloan Digital Sky Survey with Deep Convolutional Generative Neural Networks

Authors : Guanghua Zhang, Fubao Wang, Weijun Duan

Abstract : Convolution neural network (CNN) has attracted more and more attention on recent years. Especially in the field of computer vision and image classification. However, unsupervised learning with CNN has received less attention than supervised learning. In this work, we use a new powerful tool which is deep convolutional generative adversarial networks (DCGANs) to generate images from Sloan Digital Sky Survey. Training by various star and galaxy images, it shows that both the generator and the discriminator are good for unsupervised learning. In this paper, we also took several experiments to choose the best value for hyper-parameters and which could help to stabilize the training process and promise a good quality of the output.