World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

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

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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.

Keywords : convolution neural network, discriminator, generator, unsupervised learning
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020