# GAN ZOO

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March 8, 2019

**Abstract**

GAN动物园

## Contents



## 1 GAN

最初GAN[1] 是Ian J. Goodfellow 在2014年提出的。

## 2 DCGAN

DCGAN [2] 主要优化点:

- 用strided convolutions （也可以称作'反卷积'）替换spatial pooling functions (比如max pooling)
- 在generator和discriminator中都使用batch norm
- 移除FC hidden layers
- 除最后output使用tanh以外，generator所有的avtivation都用ReLU
- 在discriminator所有层中都使用LeakyReLU

在图像分类中，使用Global Average Pooling(GAP) 替换FC 可以取得更好的结果。论文发现GAP虽然可以提高模型稳定性，但是会减缓收敛速度。采用直接把conv的特征与输出层相连效果也很好。

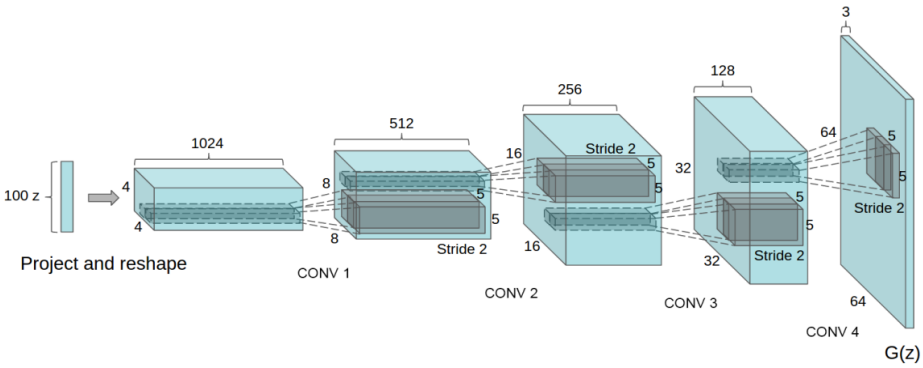


Figure 1: DCGAN

# References

[1] Ian J. Goodfellow, Jean Pouget-Abadie, Mehdi Mirza, Bing Xu, David Warde-Farley, Sherjil Ozair, Aaron C. Courville, and Yoshua Bengio. Generative adversarial nets. In Zoubin Ghahramani, Max Welling, Corinna Cortes, Neil D. Lawrence, and Kilian Q. Weinberger, editors, *Advances in Neural Information Processing Systems 27: Annual Conference on Neural Information Processing Systems 2014, December 8-13 2014, Montreal, Quebec, Canada*, pages 2672–2680, 2014.

[2] Alec Radford, Luke Metz, and Soumith Chintala. Unsupervised representation learning with deep convolutional generative adversarial networks. *CoRR*, abs/1511.06434, 2015.