**Medical Image generation using Generative Adversarial Network**

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**Abstract**

Generative adversarial network (GAN) is an unsupervised Deep Learning approach in the computer vision community which has gained significant attention in last few years in identifying internal structure of multimodal medical imaging data. The adversarial network simultaneously generates realistic medical images and corresponding annotations, which proven to be useful in many cases such as image augmentation, image registration, medical image generation, image reconstruction and image-to-image translation. These properties bring the attention among the researcher in the field of medical image analysis and we are witness of rapid adaption in many novel and traditional application. This chapter provide a state-of-the-art progress in GAN based clinical application in medical image generation, and cross modality synthesis. Various different framework of GAN which gained popularity in interpretation of medical images such as CycleGAN, Cascade GAN, pix2pix, MedGAN, InfoGAN and WGAN continue to improve their performance by incorporating additional hybrid architecture, will be discussed in length.

**Keywords:** Unsupervised Deep Learning, Generative adversarial network, Medical Image Translation.

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