**2016 - Medical image synthesis with context-aware generative adversarial networks**

Computed tomography (CT) is critical for various clinical applications, e.g., radiotherapy treatment planning and also PET attenuation correction.

Now CT exposes patients to radiation causing it to show side effects. MRI is much safer than CT because it involves no radiation. Therefore, researchers started to look for a way to get CT from MR image for the case of radiotherapy planning.

This paper is based on this idea mentioned above.

In this they propose a convolution network to generate CT from a MR image.

Adversarial training strategy and an image gradient difference loss function are used.

They further apply AutoContext Model to implement a context-aware generative adversarial network.

This proposed method outperforms 3 state of the art methods. (Experimental Results)

**Conclusion**: - They have developed a 3D GAN model for estimating CT images from MRI images by directly taking MR image patches as input and CT patches as output. The performance is improved by the use of ACM since the context of the GAN is effectively enlarged during the training process.