**Learning a probabilistic latent space of object shapes via 3D generative-adversarial modelling**

**Wu J , 2016**

**Abstract**

In this they proposed 3D Generative Adversarial Network (3D-GAN), it generates 3D objects from possible space by forcing recent advances in volumetric convolution networks and GAN.There were 3 benefits of this model: first, it enables generator to capture object structure unconditionally; second, generator establishes a mapping from low-dimensional possible space without reference image; third, discriminator provides powerful 3D descriptor which learns without supervision.

**Introductions**

For this they specified that modelling volumetric objects in GAN could be favourable solution to generate objects that are both novel and realistic.Modeling 3D objects in GAN have many advantages; first, to sample novel 3D object from possible space like uniform or Gaussian distribution.; second, discriminator carries informative feature for 3D object recognition.

**Survey**

Also proposed 3D-VAE-GAN for learning image to 3D model mapping.Discriminator in GAN learned without supervision which can be used as an informative feature for 3D object representation.