**Title** - Progressive growing of GANs for improved quality, stability, and variation

**Abstract** – They proposed a new methodology for GAN. The key components were generator and discriminator simultaneously. The added new layers which help in constructing texture details, with this they attain higher stability and which results in unparallel quality. They also proposed a new metric for evaluation of GAN which is in tern of quality and variation.

**Introduction** – Fundamentally a Gan has two NN which competes against each other i.e. Generator and Discriminator. Generator generates a sample image, and the image is undifferentiable from the realistic image. It is the responsibility of discriminator is to differentiate the sample constructed by generator to find our if it is real or fake. The discriminator is an adaptive loss function that gets discarded once the generator has been trained.

**Literature Survey** – There are multiple problem with the functions (generator and discriminator). They mainly focused on Wasserstein loss, and also studied the least-square loss. Their main focused was to train generator and discriminator progressively, start from LR images and adding new layers during the training process. This drastically increased speed of training and results in higher stability in HR images. During their research they found that when the signal magnitude changes in both the NN, there competition become unhealthy.