**2017- SeqGAN: Sequence generative adversarial nets with policy gradient**

However, GAN has gained success in many applications but it has limitations when the goal is for generating sequences of discrete tokens.

A good reason is that discrete output from generative model make it difficult to pass the gradient update from the discriminative model to the generative model.

Also, the discriminative model can only assess a complete sequence, while for a partially generated sequence, it is nontrivial to balance its current score and the future one once the entire sequence has been generated.

In this paper, they propose a sequence generation framework (called SeqGAN) to solve these problems.

SeqGAN bypasses the generator differentiation problem by directly performing gradient policy update.

**Conclusion**: - This was the first work extending GANs to generate sequences of discrete tokens.

For three real-world scenarios, i.e., poems, speech language and music generation, SeqGAN showed excellent performance on generating the creative sequence.