WGAN WITH AN INFINITELY WIDE GENERATOR HAS NO SPURIOUS STATIONARY POINTS

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ABSTRACT

Generative adversarial networks (GAN) are a widely used class of deep generative models, but their minimax training dynamics are not understood very well. In this work, we show that GANs with a 2-layer infinite-width generator and a 2-layer finite-width discriminator trained with stochastic gradient ascent-descent have no spurious stationary points. We then show that when the width of the generator is finite but wide, there are no spurious stationary points within a ball whose radius becomes arbitrarily large (to cover the entire parameter space) as the width goes to infinity.

REFERENCES