**Generative multi-adversarial networks**

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**Abstract**

They propose the framework, Generative Multi-Adversarial Network (GMAN) that extends GANs to multiple discriminators. GMAN can be trained with original objective. GMAN produces higher quality samples than standard GAN.

**Introductions**

In this paper they theoretically justify generalizing the GAN framework to multiple discriminators. They presented their N-discriminator extension to GAN framework (GMAN)

For GMAN they proposed introducing multiple discriminators exploring two approaches; first, a more discriminating; second, D matching to generator capabilities. Consideration of multi-discriminator variants that attempts to better V (D, G), providing a harsher critic to the generator.

**Survey**

GMAN variants achieved faster convergence to higher quality steady state .In addition, GMAN makes use of original GAN objective possible by increasing the odds of generator.

Introduction of multiple generators would be next step, which have difficulties for more complex game dynamics.