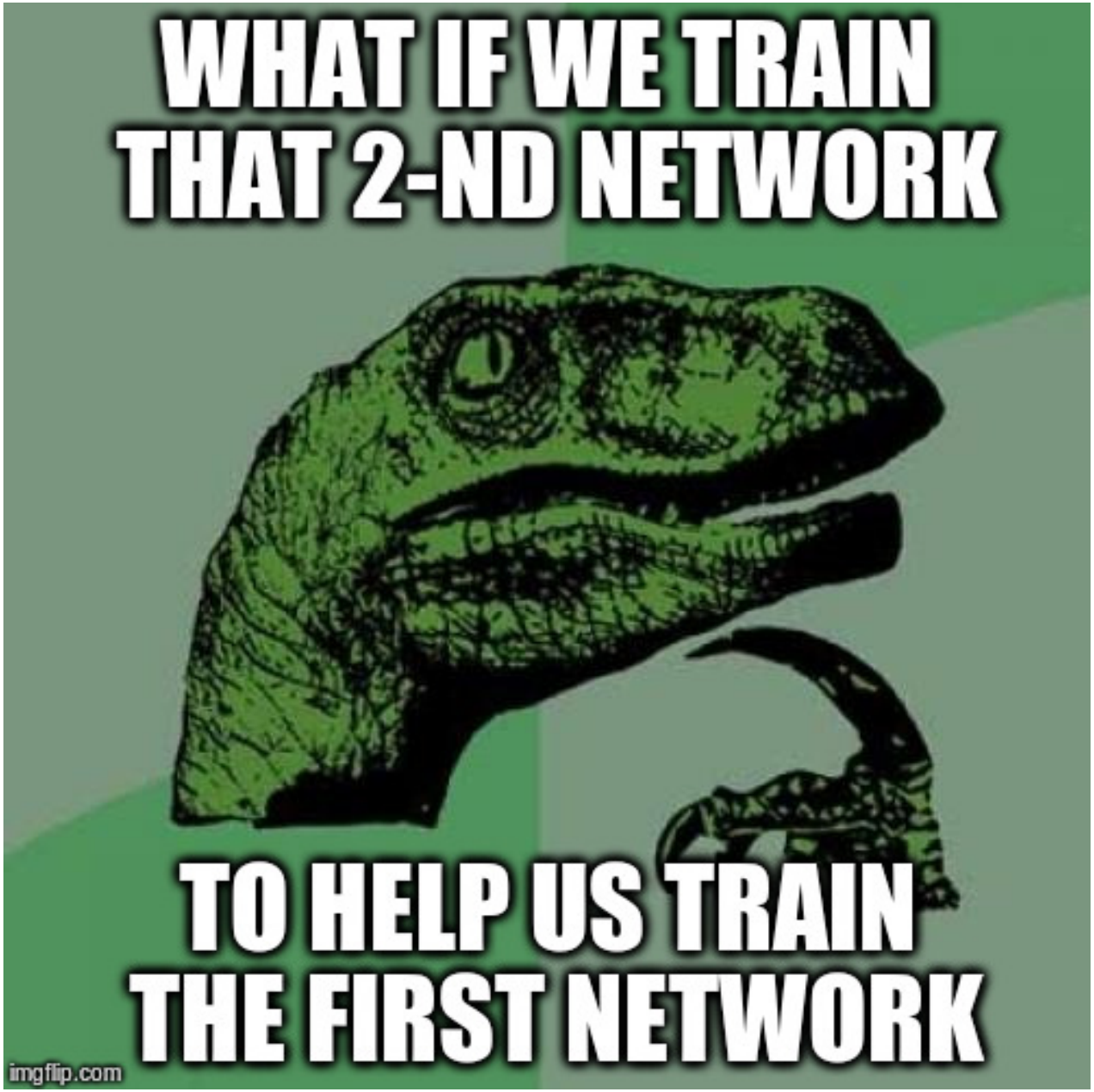

WHAT IF WE TRAIN
THAT 2-ND NETWORK
TO HELP US TRAIN
THE FIRST NETWORK
imgflip.com

Generative Adversatial Networks

Generator

Generate image
(should be plausible)

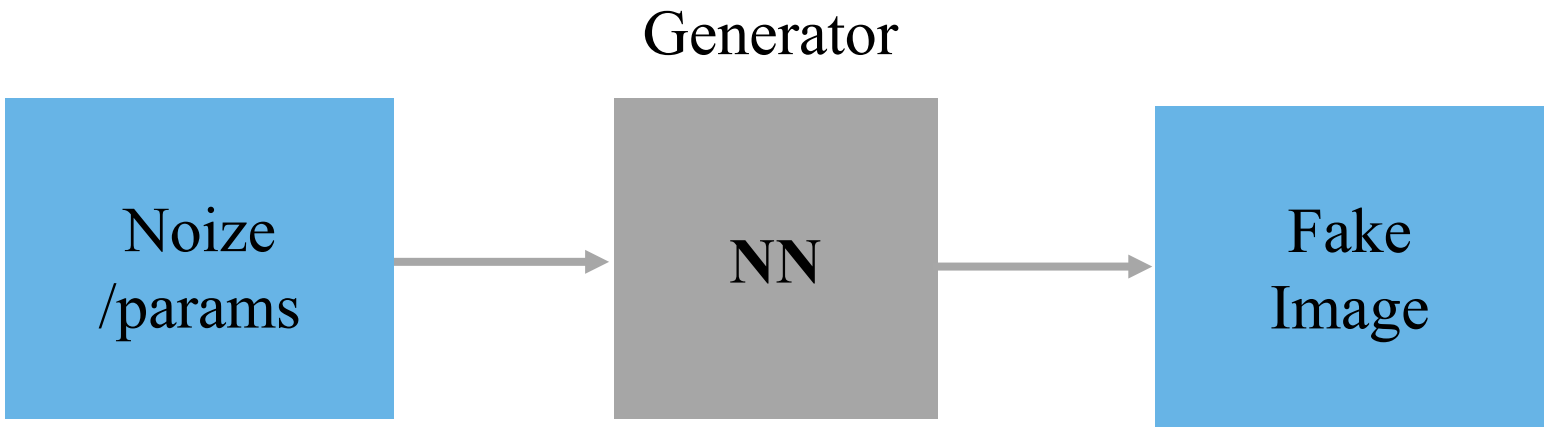
content

feedback

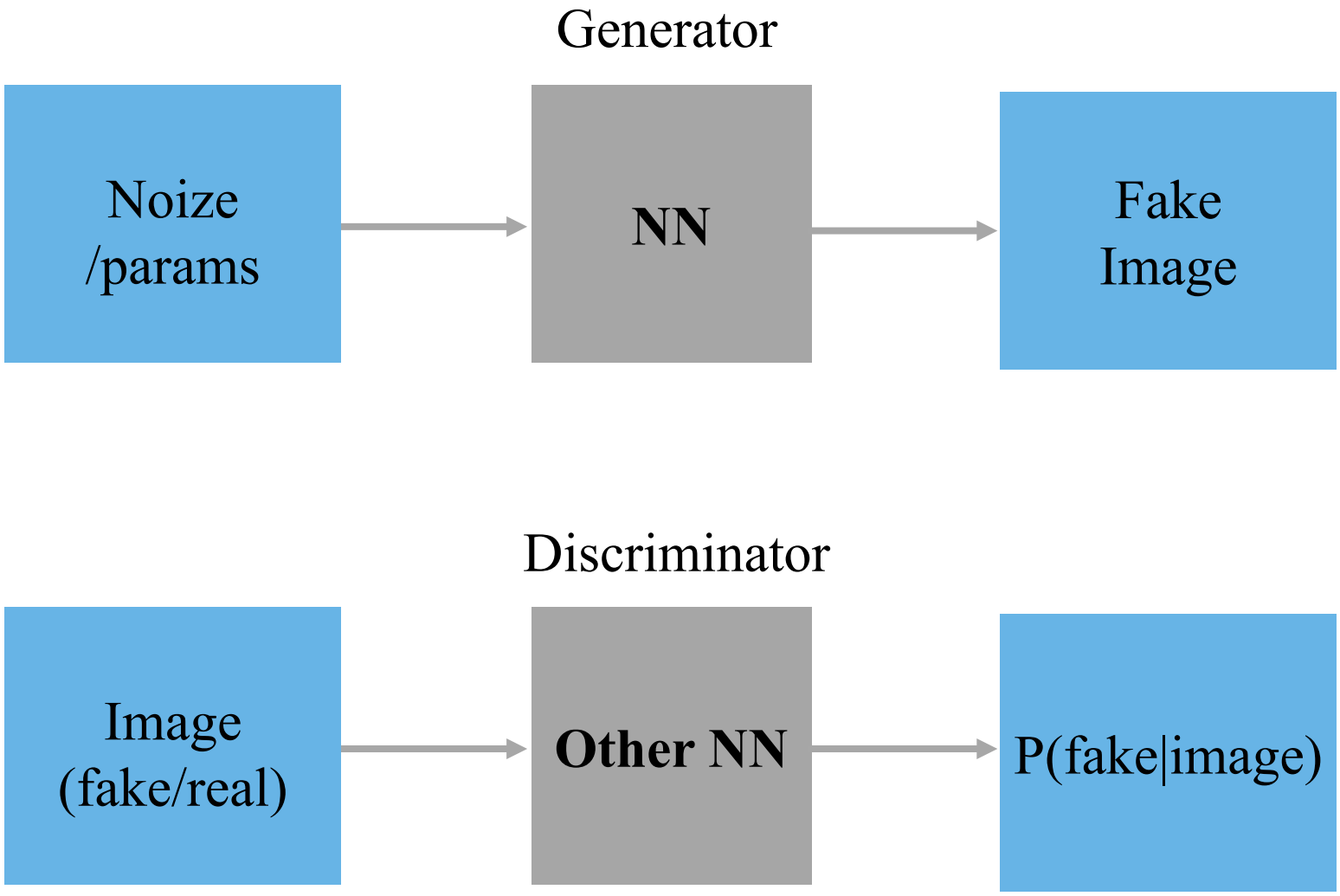
Discriminator

Tell if image is plausible
(image) → P(fake)

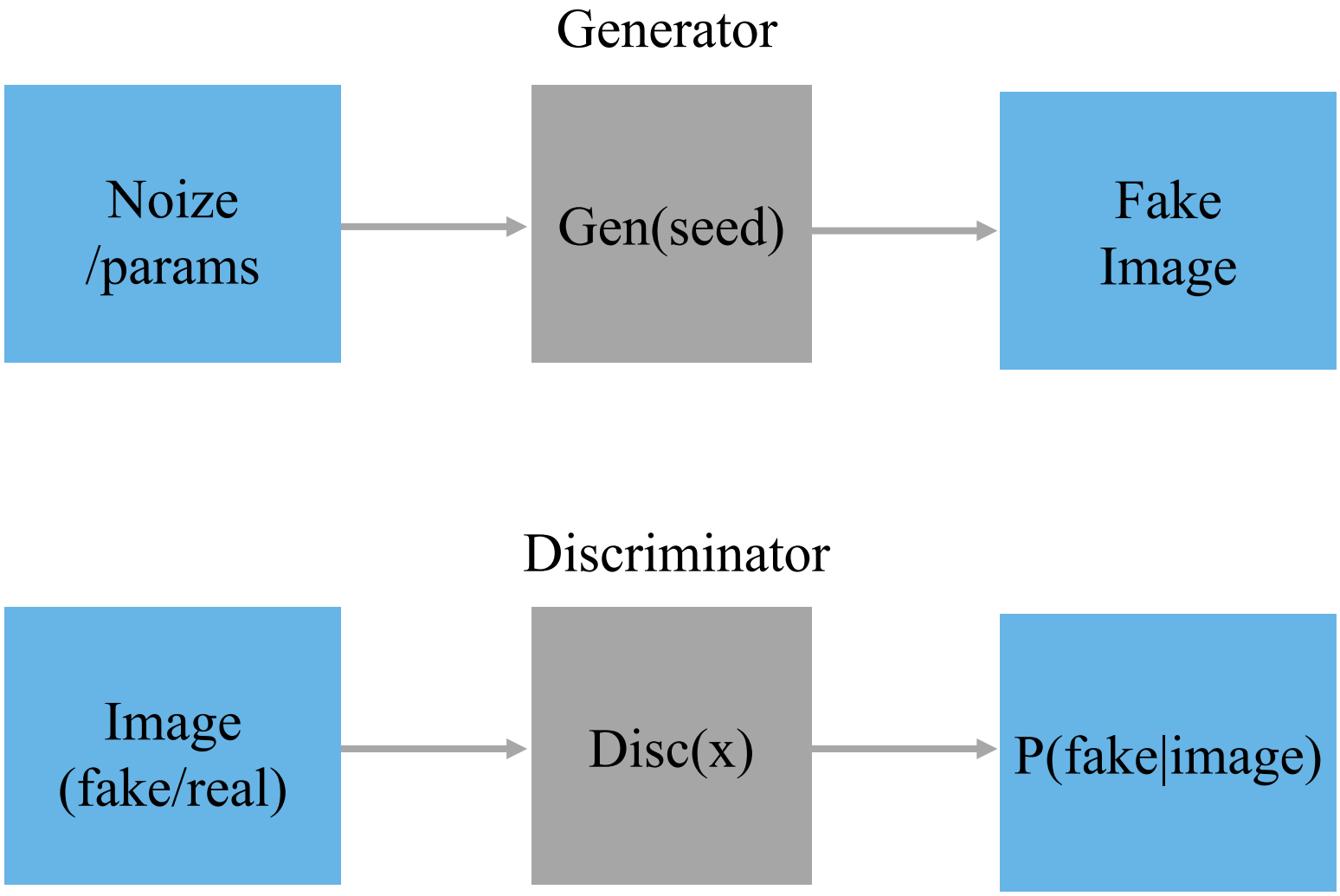
Generative Adversarial Networks



Generative Adversarial Networks

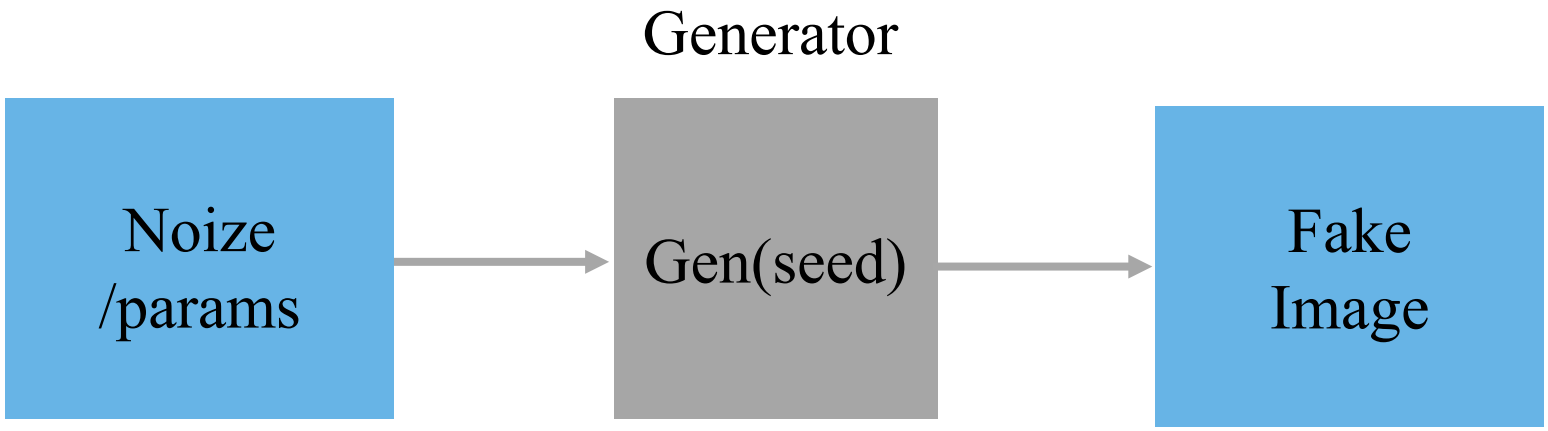


Generative Adversarial Networks

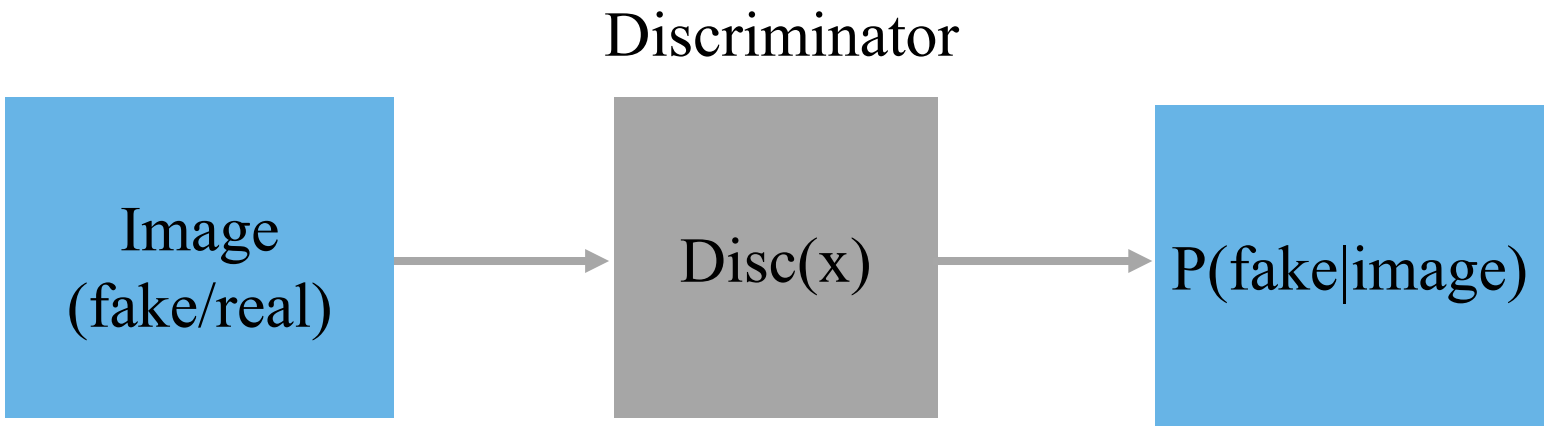


$$L_D = -log[1 - Disc(realdata)] - logDisc\big(Gen(seed)\big)$$

Generative Adversarial Networks



$$L_G = -log\left[1 - Disc\left(Gen(seed)\right)\right]$$



$$L_D = -log[1 - Disc(realdata)] - logDisc\left(Gen(seed)\right)$$

Generative Adversarial Networks

Algorithm

- sample noise **z** and images **x**
- for k in 1...K
  - Train discriminator(**x**), discriminator(generator(**z**))
- For m in 1...M
  - Train generator(z)

Generative Adversarial Networks