

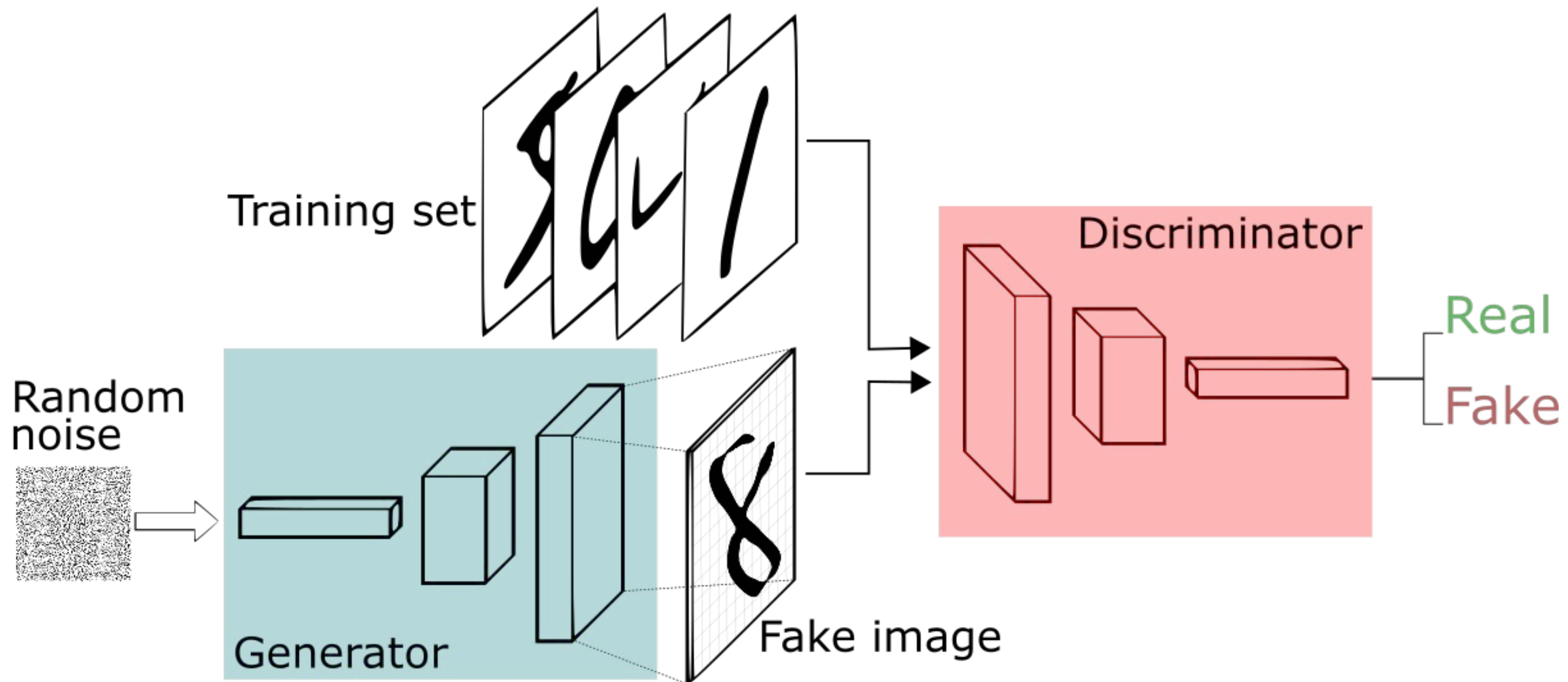
ENM 540: Data-driven modeling and probabilistic scientific computing

Generative adversarial networks

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Generative adversarial networks



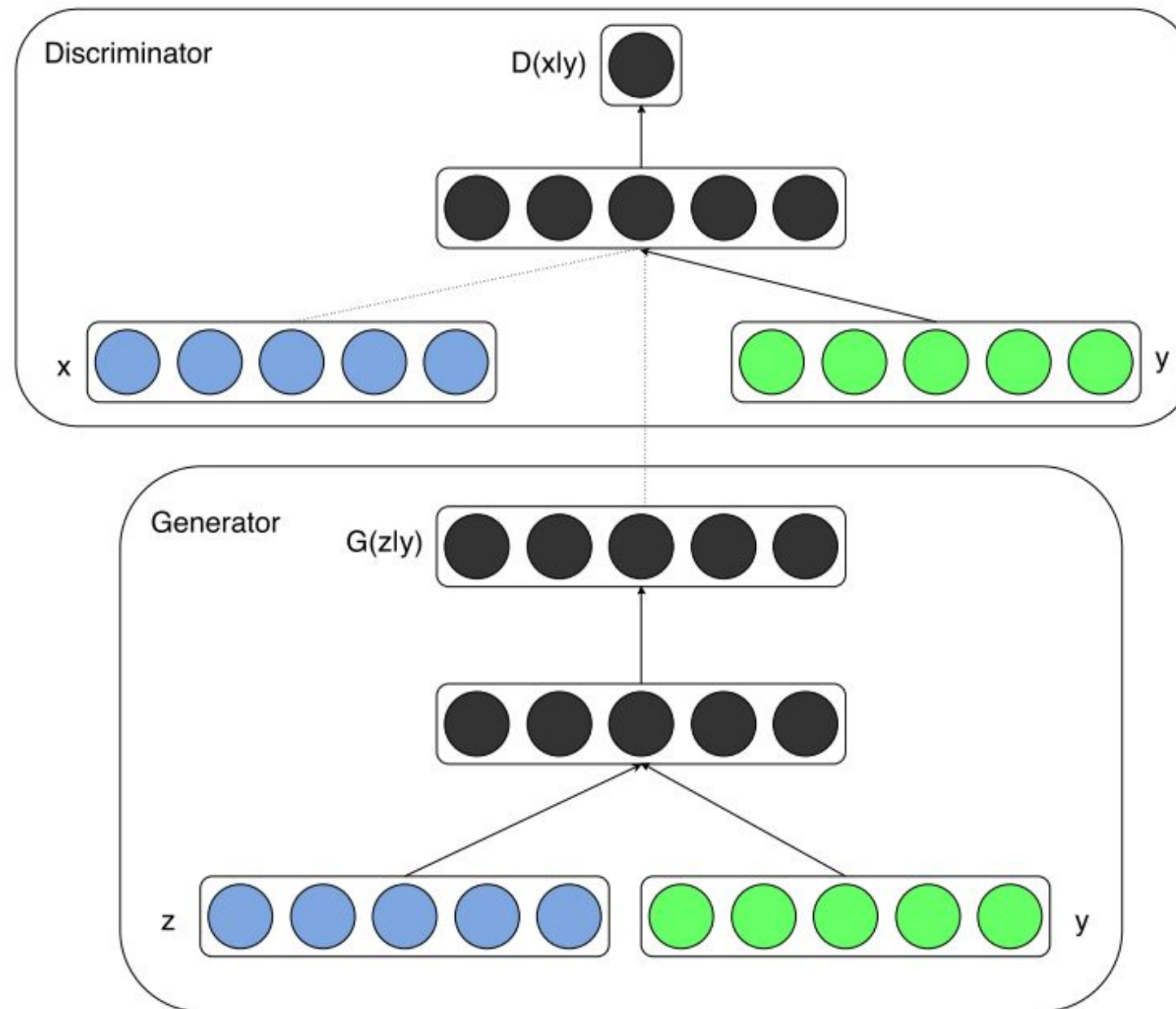
$$\min_G \max_D V(D, G) = \mathbb{E}_{q(\mathbf{x})} [\log(D(\mathbf{x}))] + \mathbb{E}_{p(\mathbf{z})} [\log(1 - D(G(\mathbf{z})))]$$

PROGRESSIVE GROWING OF GANs FOR IMPROVED QUALITY, STABILITY, AND VARIATION

Submitted to ICLR 2018

Conditional generative adversarial networks

Mirza and Osindero (2014)



GAN $\min_G \max_D V(D, G) = \mathbb{E}_{\mathbf{x} \sim p_{\text{data}}(\mathbf{x})} [\log D(\mathbf{x})] + \mathbb{E}_{\mathbf{z} \sim p_z(\mathbf{z})} [\log(1 - D(G(\mathbf{z})))]$

CGAN $\min_G \max_D V(D, G) = \mathbb{E}_{\mathbf{x} \sim p_{\text{data}}(\mathbf{x})} [\log D(\mathbf{x}|\underline{\mathbf{y}})] + \mathbb{E}_{\mathbf{z} \sim p_z(\mathbf{z})} [\log(1 - D(G(\mathbf{z}|\underline{\mathbf{y}})))]$