# CycleGAN Training Workflow



Real $A$
(BraTS)

Real $B$
(UPenn)
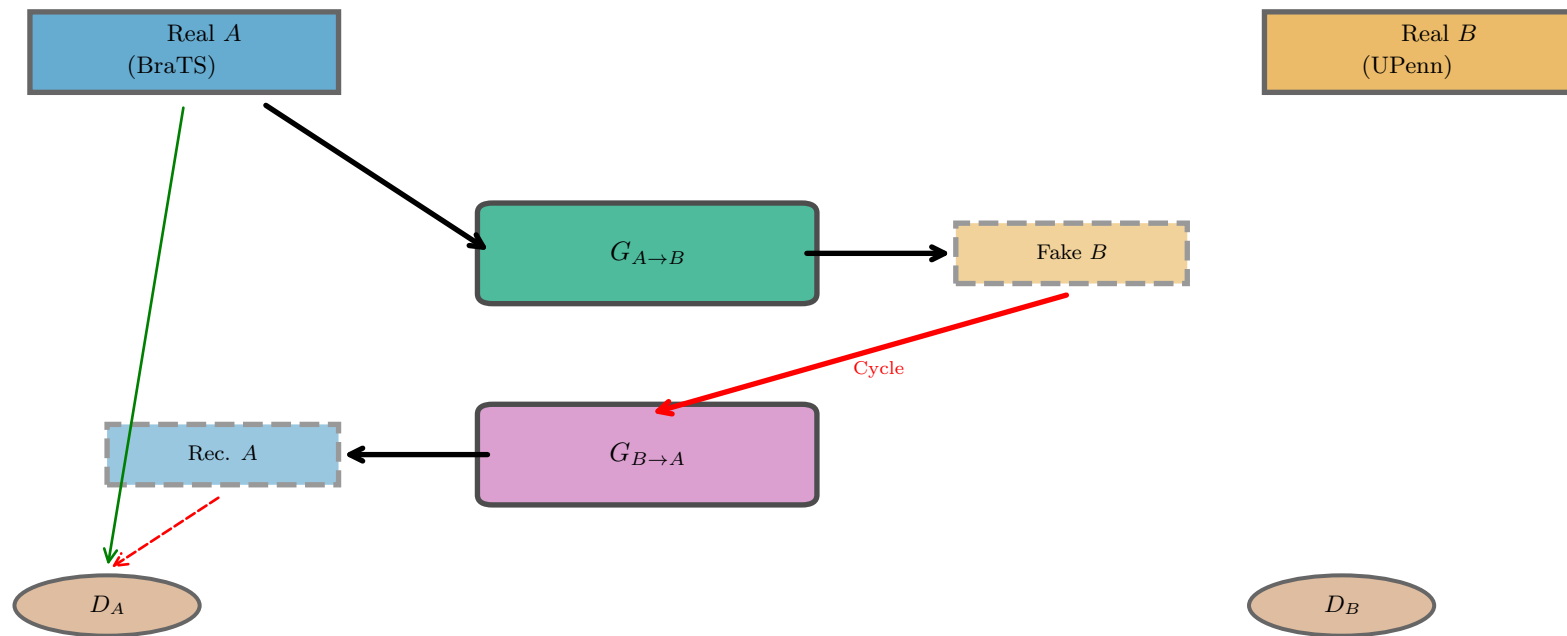
$G_{A \to B}$

Fake $B$

Cycle

Rec. $A$

$G_{B \to A}$

$D_A$

$D_B$

$\mathcal{L}_{\text{GAN}}$: Adversarial

$\mathcal{L}_{\text{cycle}}$: Cycle consistency

$\mathcal{L}_{\text{identity}}$: Identity mapping

$\mathcal{L}_{\text{SSIM}}$: Perceptual quality

$\mathcal{L}_{\text{total}} = \mathcal{L}_{\text{GAN}} + \lambda_{\text{cycle}}\mathcal{L}_{\text{cycle}} + \lambda_{\text{identity}}\mathcal{L}_{\text{identity}} + \lambda_{\text{SSIM}}\mathcal{L}_{\text{SSIM}}$