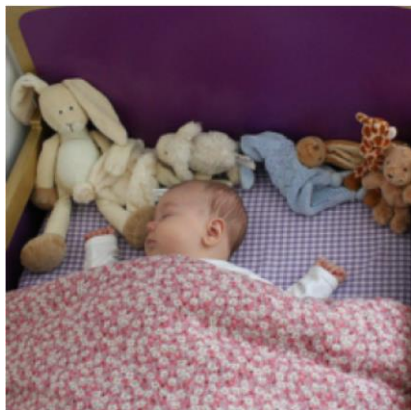
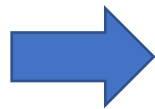
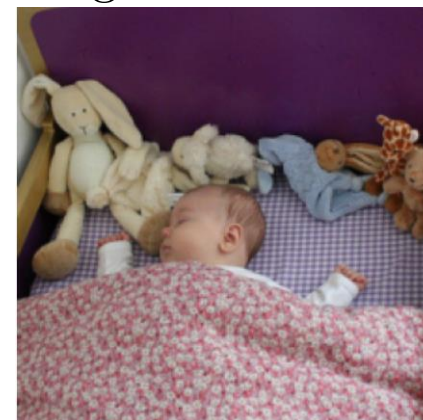


cradle

 x gradual sparse
attack δ + x  $x + \delta$

gradual sparse attack:

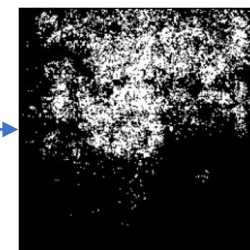
1)

$$\alpha_{k+1} = \text{Prox}_{r_s}(\delta_k)$$

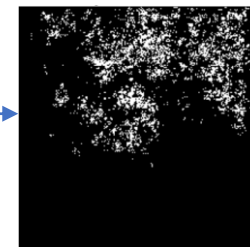
$$\beta_{k+1} = \text{Prox}_{r_\infty}(\beta_k)$$

2)

$$\delta_{k+1} = \delta_k - \mu_{\delta,k} \nabla_{\delta} E(\delta_k, \alpha_{k+1}, \beta_{k+1})$$

Update $\mu_{\delta,k}, \mu$ 

⋮



⋮

