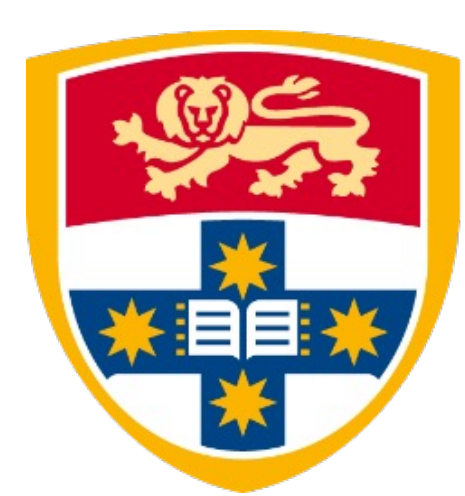
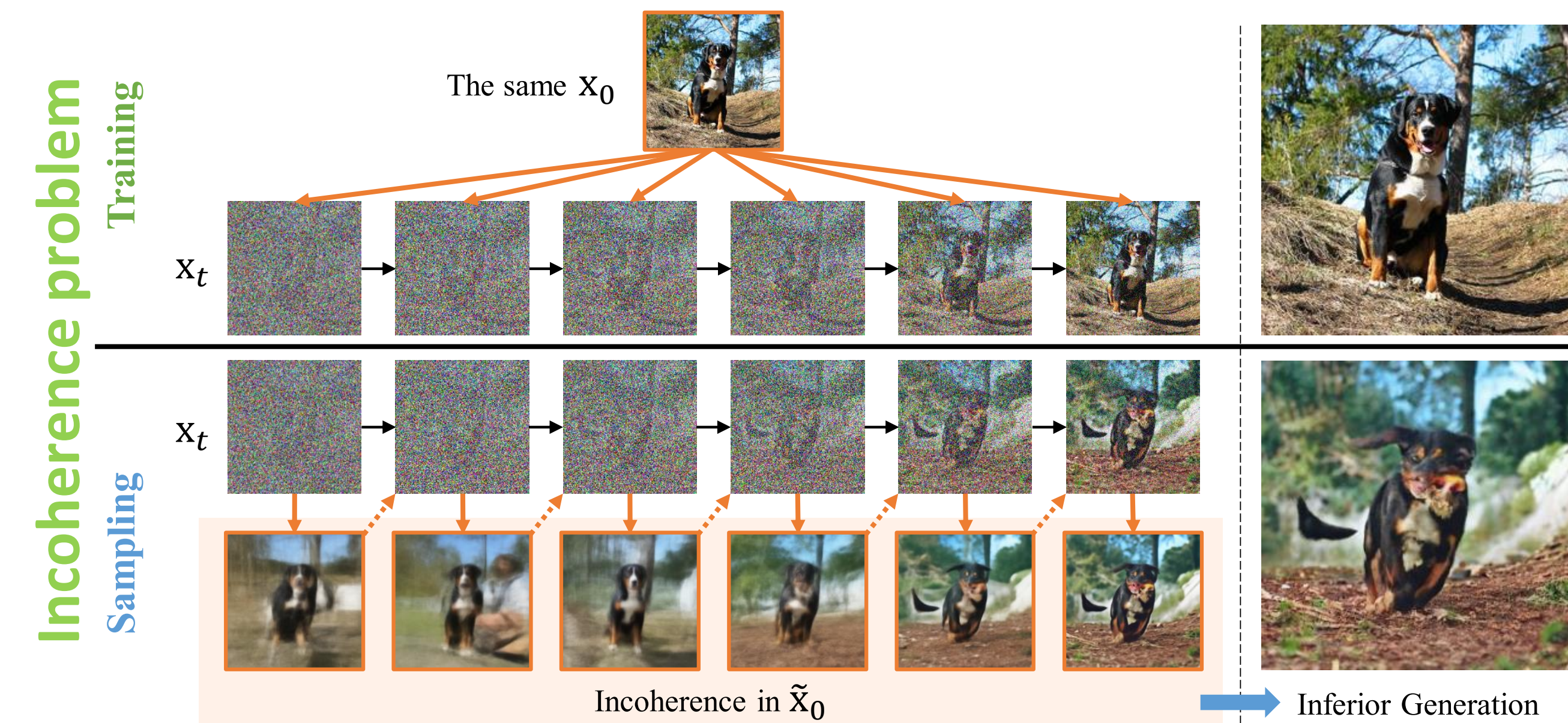
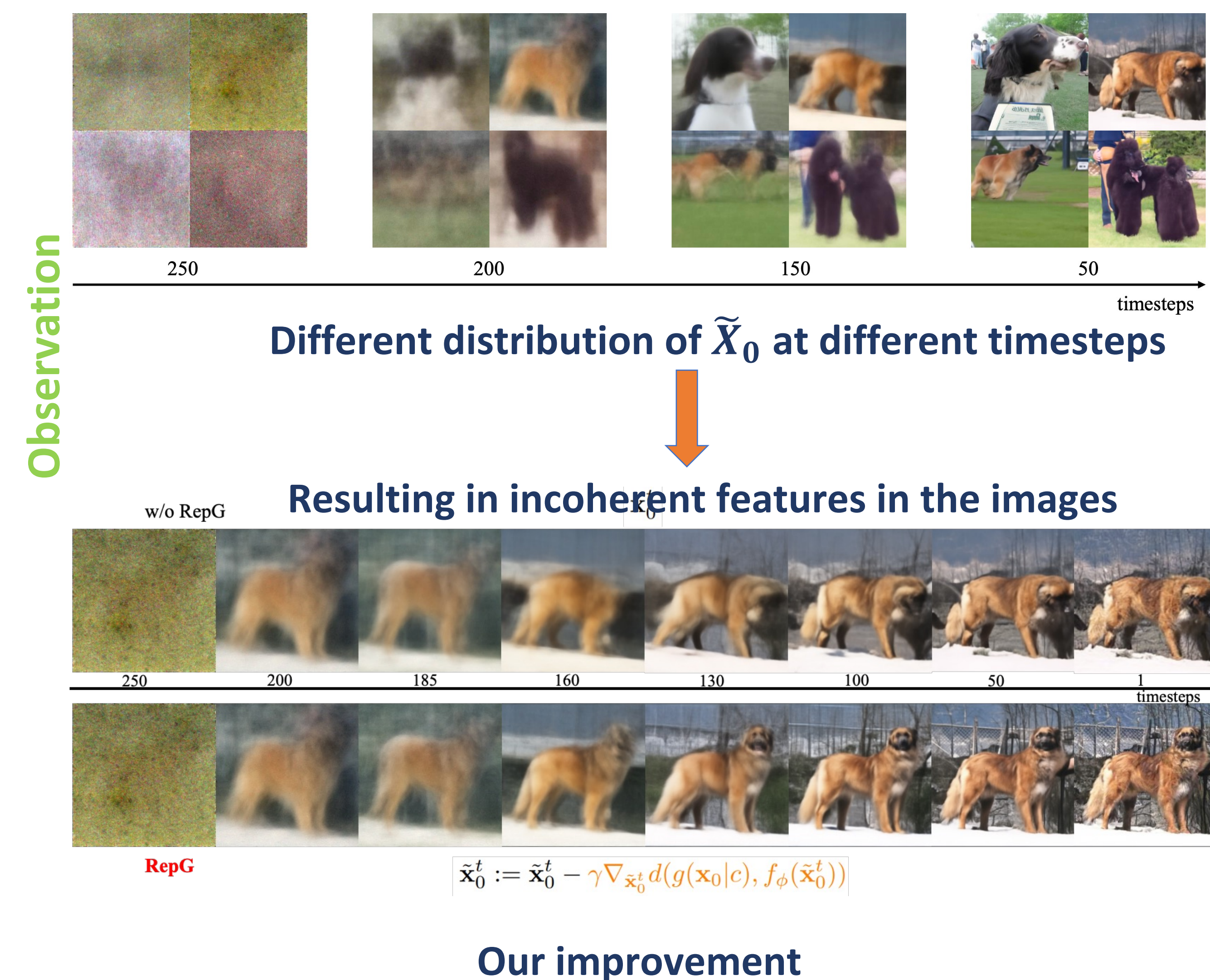




Motivation



Analysis



Modelling

$$\mathbf{x}_{t-1} = \frac{(1 - \alpha_t)\sqrt{\bar{\alpha}_{t-1}}}{1 - \bar{\alpha}_t} \tilde{\mathbf{x}}_0^t + \frac{(1 - \bar{\alpha}_{t-1})\sqrt{\alpha_t}}{1 - \bar{\alpha}_t} \mathbf{x}_t + \sigma_t z$$

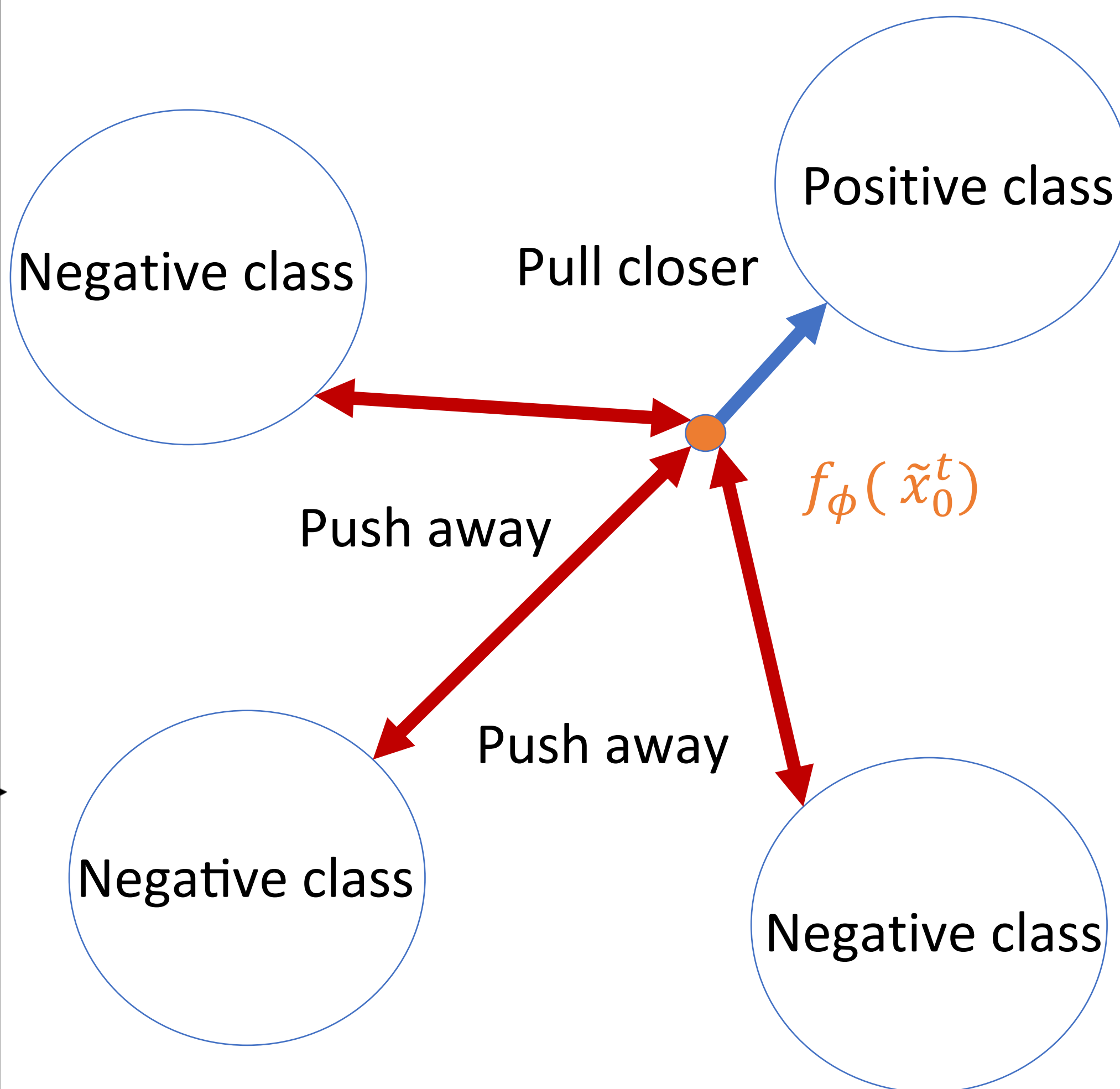
$$\tilde{\mathbf{x}}_0^t \sim q(\tilde{\mathbf{x}}_0^t | \mathbf{x}_t) = \mathcal{N}(\tilde{\mathbf{x}}_0^t; \frac{-\mathbf{x}_t}{\sqrt{\bar{\alpha}}}, \frac{\sqrt{1 - \bar{\alpha}_t}}{\sqrt{\bar{\alpha}_t}})$$

Incoherence Definition

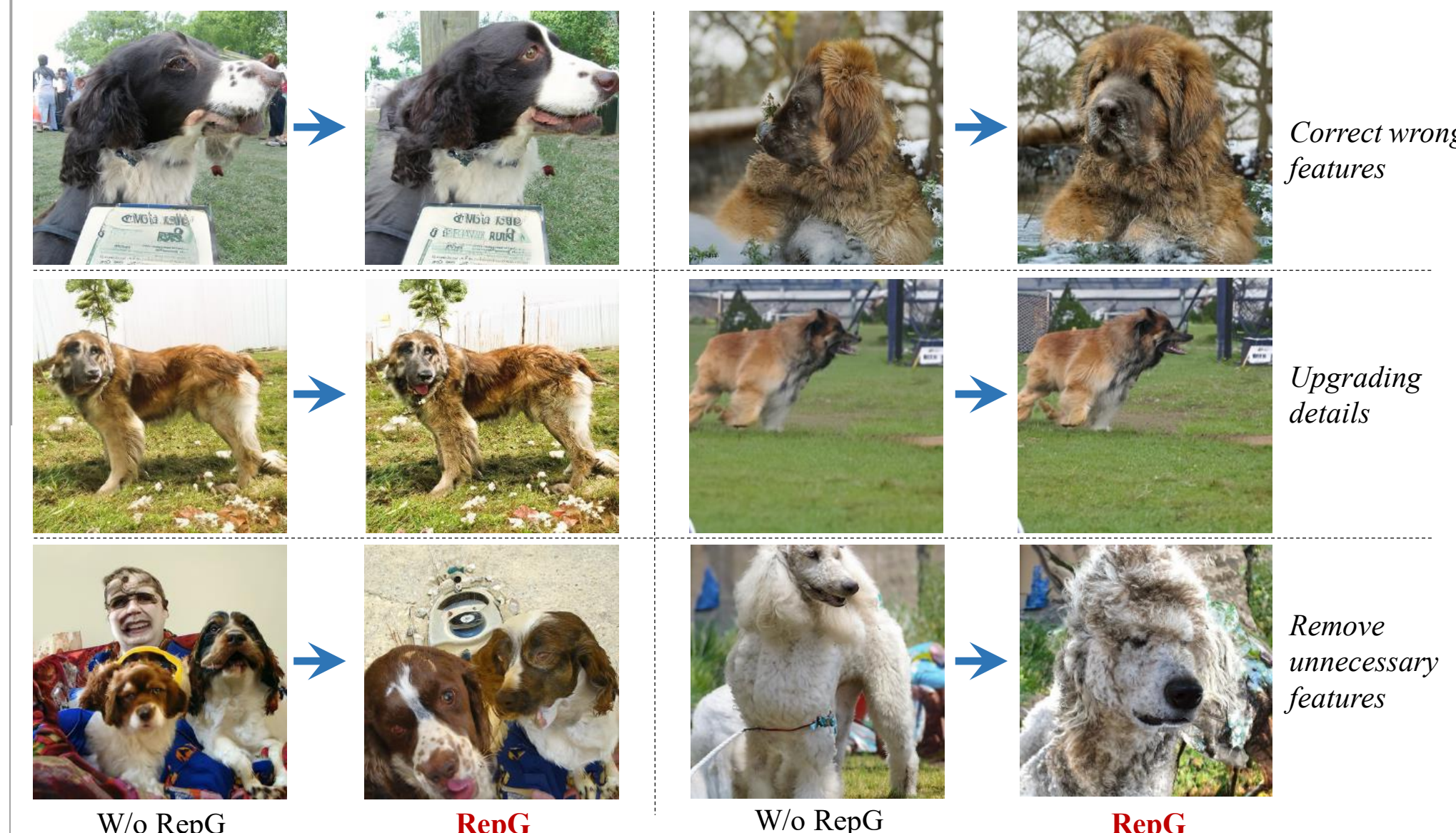
$$q(\tilde{\mathbf{x}}_0^{t_1} | \mathbf{x}_{t_1}) \neq q(\tilde{\mathbf{x}}_0^{t_2} | \mathbf{x}_{t_2}) \neq q(\mathbf{x}_0) \forall t_1, t_2 > 1, t_1 \neq t_2$$

Methodology

$$\tilde{\mathbf{x}}_0^t := \tilde{\mathbf{x}}_0^t - \gamma \nabla_{\tilde{\mathbf{x}}_0^t} d(g(\mathbf{x}_0|c), f_\phi(\tilde{\mathbf{x}}_0^t))$$



Experimental Results



Model	FID	sFID	Prec	Rec	Loss	FID	sFID	Prec	Rec
ImageNet 64x64									
BigGAN [†]	4.06	3.96	0.79	0.48	W/o Guidance	2.07	4.29	0.73	0.63
IDDP	2.90	3.78	0.73	0.62	Contrastive	1.69	3.42	0.75	0.62
IDDP + RepG	2.53	3.44	0.75	0.60	Cosine Similarity	1.75	3.57	0.75	0.60
ADM	2.07	4.29	0.73	0.63					
ADM + RepG	1.69	3.42	0.75	0.62					
ADM-G	2.47	4.88	0.80	0.57					
ADM-G + PxP	1.84	3.97	0.76	0.60					
ADM-G + ProG	1.87	4.33	0.77	0.60					
ADM-G + EDS + ProG	1.77	4.25	0.77	0.61					
ADM-CLSF	1.89	4.45	0.77	0.60					
ADM-CLSF + ProG	1.91	4.51	0.76	0.60					
ADM-CLSF + RepG	1.67	3.44	0.78	0.61					
ImageNet 256x256									
BigGAN [†]	7.03	7.29	0.87	0.27	Loss	FID	sFID	Prec	Rec
DCTrans [†]	36.51	8.24	0.36	0.67					
VQ-VAE-2 [†]	31.11	17.38	0.36	0.57					
IDDP [†]	12.26	5.42	0.70	0.62					
ADM	10.94	6.02	0.69	0.63					
ADM + RepG	7.83	5.79	0.72	0.61					
ImageNet 64x64									
W/o Guidance	2.07	4.29	0.73	0.63					
MoCo-v2	1.69	3.42	0.75	0.62					
SimSiam	1.88	3.80	0.74	0.62					
Moco-v3	1.81	3.93	0.76	0.62					