

$$2D_{KL}\left(q\left(\mathbf{z}\mid\boldsymbol{\theta}^{(k)}\right)\parallel\tilde{p}(\boldsymbol{\theta}\mid\mathbf{z})\right)\approx\left(\boldsymbol{\theta}-\boldsymbol{\theta}^{(k)}\right)^{\top}\mathcal{F}_{\boldsymbol{\theta}}\left(\boldsymbol{\theta}-\boldsymbol{\theta}^{(k)}\right)=\left\|\left(\boldsymbol{\theta}-\boldsymbol{\theta}^{(k)}\right)\right\|_{\mathcal{F}_{\boldsymbol{\theta}}}^2$$