

$$\nabla_{\theta} \mathcal{L}_{\text{IWAE}} = \sum_{i=1}^k \tilde{w}_i \nabla_{\theta} \log \frac{\text{p}(x^{(i)}, y)}{\text{q}(x^{(i)} | y)}$$

$$\tilde{w}_i = \frac{w_i}{\sum_j w_j} \qquad w_i = \frac{\text{p}(y, x^{(i)})}{\text{q}(x^{(i)} | y)}$$