

$$p_{\phi(\hat{\mathbf{x}}, \hat{\mathbf{y}})}(\mathbf{x}|\mathbf{y}) \sim \mathbf{x} = \mathbf{f}_{\mathbf{y}, \phi(\hat{\mathbf{x}}, \hat{\mathbf{y}})}^{-1}(\mathbf{z})$$

