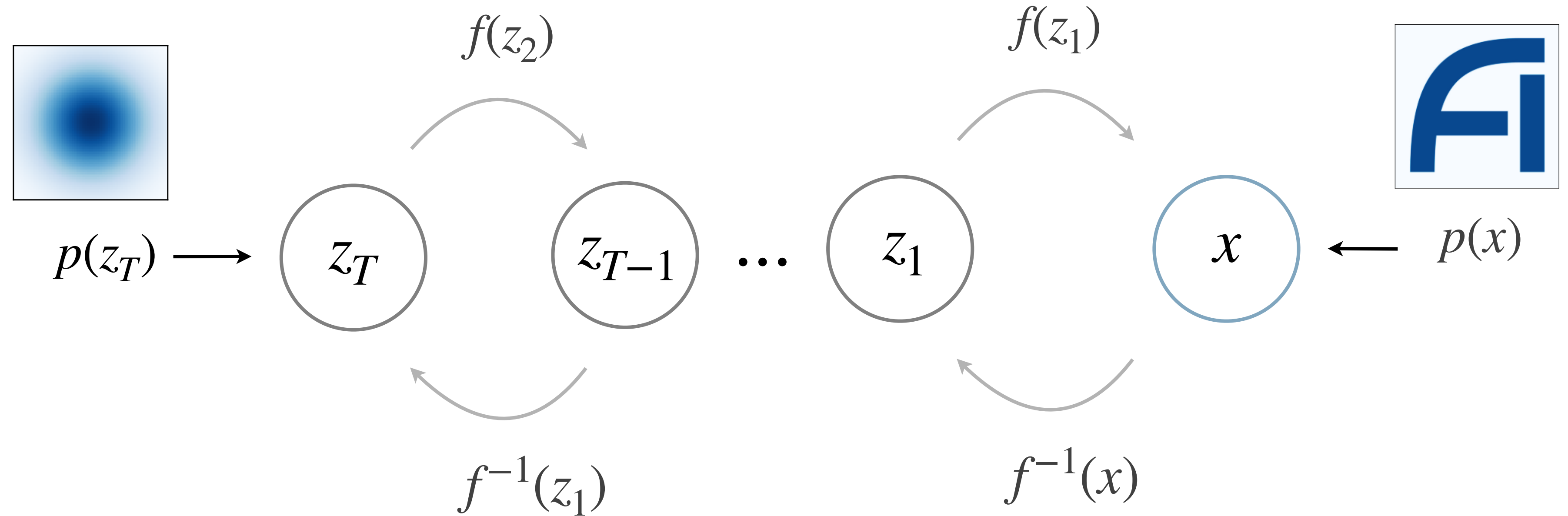


Normalizing flows

Multiple flow transformation can be easily composed for e.g. more expressivity



Computing $p(x)$: *change-of-variables formula*

$$\int p(x) dx = \int p(z) dz = 1$$

$$p(x) = \pi(z) \left| \frac{dz}{dx} \right| = p(f^{-1}(x)) \left| \frac{df^{-1}}{dx} \right| = p(f^{-1}(x)) |\det \nabla f|^{-1}$$

Train using maximum-likelihood objective

$$\phi^* = \left\langle \arg \max_{\phi} p(f_{\phi}^{-1}(x)) |\det \nabla f_{\phi}|^{-1} \right\rangle_{x \sim p(x)}$$

Simple flow transformations

Example: *Affine coupling flow* [Dinh et al 2016]

