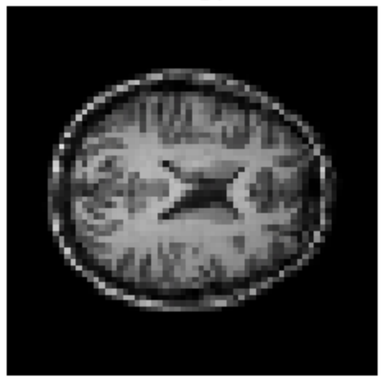
Normalizing Flow - Abilities

Allow for exact likelihood evaluation

$$p_x(x = \text{  }) = 0.99$$

$$p_x(x = \text{  }) = 0.01$$



Train network and use as prior in bayesian formulations:

$$\underset{\mathbf{x}}{\text{argmax}} \; p(\mathbf{x}|\mathbf{y}) = \underset{\mathbf{x}}{\text{argmax}} \; \log \; p(\mathbf{y}|\mathbf{x}) + \log \; p(\mathbf{x})$$

Normalizing Flow - Abilities

Compare abilities with other density estimation models

Model classes

Model	Benefits	Drawbacks
GANs	Good samples Fast training & sampling	Likelihood not defined Unstable training
EBMs	Not constrained	Likelihood is intractable Sampling is intractable
VAEs	Fast training & sampling	Likelihood is intractable
ARMs	Exact likelihoods Good likelihoods	Slow sampling
Flows	Exact likelihoods Fast sampling	Constrained architectures
Diffusion	Good likelihoods Good samples	Likelihood is intractable Sampling is slow

Add in easy and straightforward maximum likelihood training!

https://www.youtube.com/watch?v=2tVHbcUP9b8