

# Proposed Approach – Variational Inference

Pose inverse problem in Bayesian formulation where the (conditional) posterior distribution encodes all sources of uncertainty

$$p(\mathbf{x} | \mathbf{y})$$

We want a method of **Variational Inference** to approximate this distribution

$$q_{\theta}(\mathbf{x} | \mathbf{y}) \approx p(\mathbf{x} | \mathbf{y})$$

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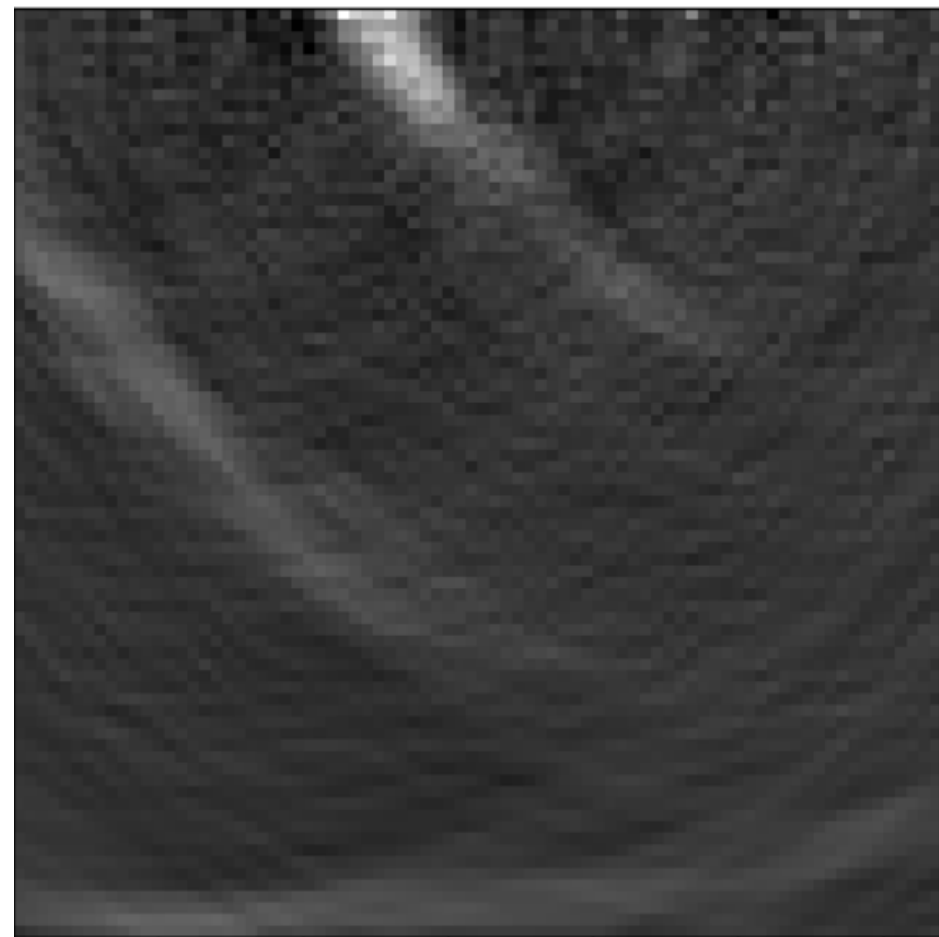
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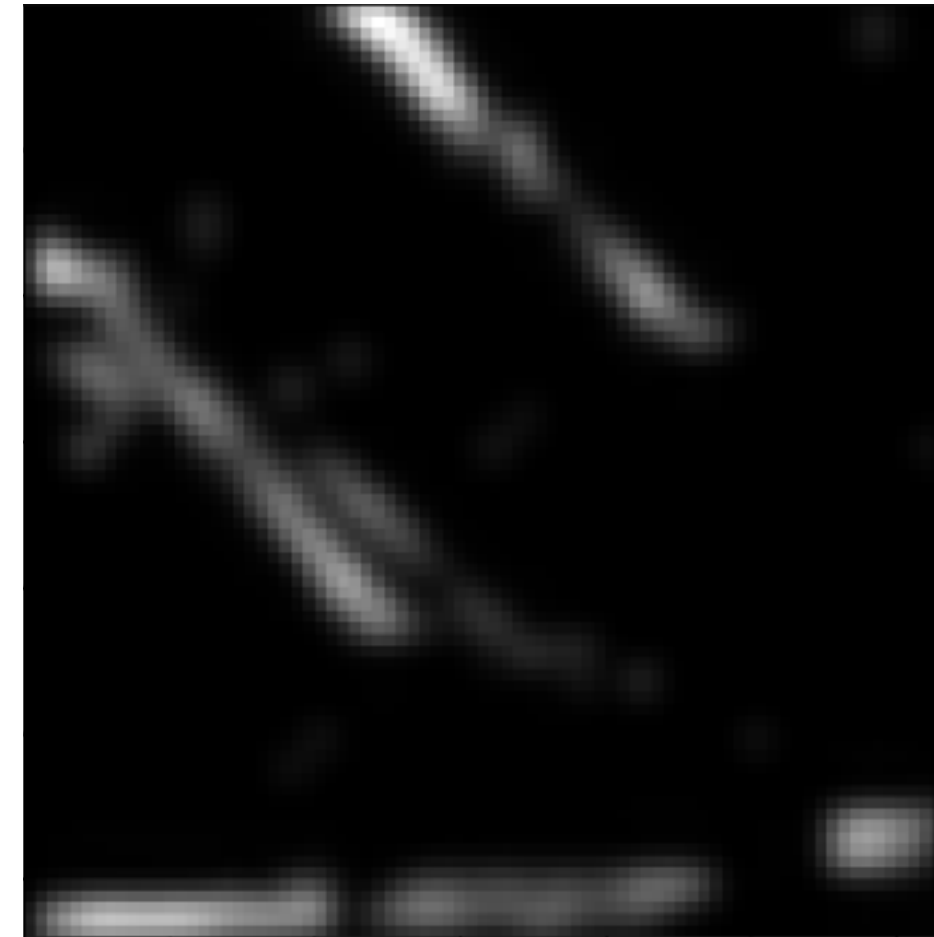
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Training samples & operator  $\rightarrow$  samples from joint distribution  $\mathbf{y}, \mathbf{x} \sim \pi_{y,x}(\mathbf{y}, \mathbf{x})$



$$\mathbf{y} = \mathbf{p}_{adj} = \mathbf{A}^{\top} \mathbf{d}$$



$$\mathbf{x} = \mathbf{p}$$