Classic Bayes

$$\theta = (\mu, \sigma^2) \sim \pi(\mu, \sigma^2)$$

$$\Longrightarrow \quad y \sim \mathcal{N}(\mu, \sigma^2)$$

Bayesian Inverse Problem

$$\theta = \begin{bmatrix} x_1 \\ \vdots \\ x_n \end{bmatrix} \sim \pi(\theta) \implies \boxed{\text{MODEL}} \implies (\mu, \sigma^2)$$