$$p(x_i|A) = \frac{1}{2\pi} e^{-\frac{(x_i-A)^2}{2}} \quad \Rightarrow \quad p(x|A) = \frac{1}{(2\pi)^N} e^{-\frac{\sum_{i=1}^{N}(x_i-A)^2}{2}}$$

$$p(A) = 1, \quad A \in \langle 0,1 \rangle$$

$$= 0, \quad 0 < A < 1$$

$$p(A|x_i) = \frac{\frac{1}{2\pi} e^{-\frac{(x_i-A)^2}{2}}}{\int_0^1 \frac{1}{2\pi} e^{-\frac{(x_i-A)^2}{2}} dA} \quad \Rightarrow \quad p(A|x) = \frac{e^{-\frac{\sum_{i=1}^{N}(x_i-A)^2}{2}}}{\int_0^1 e^{-\frac{\sum_{i=1}^{N}(x_i-A)^2}{2}} dA}$$

$$\hat{A} = E[p(A|x)] = \int A\, p(A|x)\, dA = \frac{\int_0^1 A \exp\left\{-\frac{\sum(x_i-A)^2}{2}\right\} dA}{\int_0^1 \exp\left\{-\frac{\sum(x_i-A)^2}{2}\right\} dA}$$

SLIDE 58 : BAYESOVSKÉ ODHADY