i^1	j^2	
n	n	task 个数
1	unknown 平均 x	单个 task size
n	nx	total size

已知道 $x \sim$ normal distribution (μ, σ_0^2)

给定 x，单个 task size $\sim$ normal distribution (μ_x, σ_1^2)

采 m 个 task，有

$$\vec{y} = (y_1, y_2, \dots, y_m)$$

基于假设，显然

$$P(y_i|x) = \frac{1}{\sqrt{2\pi}\sigma_1} e^{-\frac{(y_i-x)^2}{2\sigma_1^2}}$$

$$P(\vec{y}|x) = \prod_{i=1}^{m} \frac{1}{\sqrt{2\pi}\sigma_1} e^{-\frac{(y_i-x)^2}{2\sigma_1^2}}$$

通过 $\vec{y}$ 估计 x，有

$$P(x|\vec{y}) = \frac{P(\vec{y}|x)P(x)}{P(\vec{y})}$$

$$= \frac{P(\vec{y}|x)\cdot P(x)}{\int_x P(\vec{y}|x)\cdot P(x)dx}$$

$$= \frac{1}{\sqrt{2\pi}}\left[\frac{m}{\sigma_1^2} + \frac{1}{\sigma_0^2}\right]^{\frac{1}{2}} \cdot e^{-\left(\frac{m}{2\sigma_1^2} + \frac{1}{2\sigma_0^2}\right)\left(x - \frac{\sum_{i=1}^{m}\frac{1}{\sigma_1^2}y_i + \frac{1}{\sigma_0^2}\mu}{\frac{m}{\sigma_1^2} + \frac{1}{\sigma_0^2}}\right.}$$

也就是说，给定 $\vec{y}$，x 也符合 normal distributi