

Principal Component Analysis

M-step

$$\begin{aligned} & \max_{\theta} \mathbb{E}_{q(T)} \sum_i \log p(x_i \mid t_i, \theta) p(t_i) \\ &= \sum_i \log \frac{1}{Z} \\ &+ \sum_i \mathbb{E}_{q(t_i)} \log \left(\exp \left(-\frac{(x - Wt_i - b)^2}{2\sigma^2} \right) \exp \left(-\frac{t_i^2}{2} \right) \right) \end{aligned}$$