

Training GMM

$$\max_{\theta} \prod_{i=1}^N p(x_i \mid \theta) = \prod_{i=1}^N (\pi_1 \mathcal{N}(x_i \mid \mu_1, \Sigma_1) + \dots)$$

subject to $\pi_1 + \pi_2 + \pi_3 = 1; \pi_k \geq 0; k = 1, 2, 3.$