GMM: EM Algorithm

1. Choose **k** random points to be cluster centers (or estimate using k-means...)

2. For each data point, calculate the **probability** of belonging to each cluster

3. Using these probability weights, recalculate the **means + variances** (and weights)

4. Repeat 2 and 3 until **distributions converge**

Multimodal Distribution

$$p(x) = \sum_{k=1}^{K} w_k \, \mathcal{N}(x \,|\, \mu_k, \Sigma_k)$$

probability of being in group k

likelihood of seeing x **in group** k