

The background features a complex geometric pattern of thin, light-colored lines forming a network of triangles and polygons. Overlaid on this are numerous small, colored dots in shades of green, blue, and orange. A prominent white diagonal band runs from the top-left towards the bottom-right, serving as a backdrop for the title. In the top-left corner, there is a small inset image showing a cluster of orange and red dots with a grid of small '+' markers. The overall aesthetic is technical and data-driven.

Session 3: Gaussian Mixture Models

Question

- ❑ Why people prefer log-likelihood than likelihood for Gaussian Mixture?
 - ❑ A. In real world implementation, the likelihood could be very small such that the float variable cannot work properly. It may make it hard to determine whether the termination criterion is reached or not.
 - ❑ B. In theoretical derivations, we need to take partial derivatives of the likelihood w.r.t. each parameter in the maximization step. Taking the log of the likelihood expression transforms it from a product to a linear combination of parameters, which makes the partial derivatives much easier to compute.
- ❑ Answer: A and B
- ❑ Explanations: log-likelihood is very useful in both theoretical derivations and real world implementations.