amc technical brief

Mixture models for describing multimodal data

An essential precept of statistics is that we always look at a graphical presentation of our data before calculating summary statistics or drawing any inference. Sometimes the inference is blazingly obvious without statistics. Sometimes, however, we see immediately that the data are inconsistent with the model, the assumptions such as the normal distribution that underlie the inference we wish to draw. In such cases we have to make alternative assumptions and use different, often more complicated, statistical methods. A common occurrence of the type arises when the dataset is (or appears to be) multimodal (Figures 1, 2).w

o or more different processes are combined. For example, results obtained by participants in a proficiency test when two or more inconsistent analyt

Maximum likelihood
Maximum likelihood is an estimation method that is more general than least squares. However, it often needs an iterative procedure to obtain the results. For data $(\,_1,...,x_n)$ assumed independent and randomly drawn from a model

defined by parameters , the likelihood is defined by