

Implementing discrete approximations to continuous mixture distributions

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Mixture distributions are ubiquitous in a wide range of statistical applications, for example when dealing with marginals of a multivariate distribution. Quite commonly, there is no closed-form analytical expression for their density or distribution function, and a simplified mixture, using a finite set of components, provides a useful approximation. How such a mixture should be set up, however, is not obvious. We describe a construction method allowing to bound the discrepancy between the aimed for distribution and the finite approximation. The procedure is illustrated using an application in Bayesian random-effects meta-analysis.