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Improving the EM algorithm for mixtures

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One of the estimating equations of the Maximum Likelihood Estimation method, for finite mixtures of the one parameter exponential family, is the first moment equation. This can help considerably in reducing the labor and the cost of calculating the Maximum Likelihood estimates. In this paper it is shown that the EM algorithm can be substantially improved by using this result when applied for mixture models. A short discussion about other methods proposed for the calculation of the Maximum Likelihood estimates are also reported showing that the above findings can help in this direction too.

Keywords: EM algorithm, k-finite mixtures, normal mixtures, Poisson mixtures, semiparametric maximum likelihood