G.J. McLachlan and D. Peel, *Finite Mixture Models*, New York: Wiley, 2000, pp. 419.

This is an excellent book for those who are engaged in research work in modeling multimodal data. It contains up-to-date developments in finite mixtures of distributions which are used to describe multimodal data. A basic knowledge of mathematical statistics is necessary to read this book. I liked the authors' presentation style and the examples used to illustrate. It can be used as a textbook in graduate courses but only with supplementary material. There are no exercise problems. The readability slows down at times due to so many notations and symbols that one cannot remember well as they mean different things in different contexts. A list of symbols and notations could have been included. The reference list is exhaustive and about 40published since 1995.

Multimodal data occurs commonly in pattern recognition work, medical imaging, genetics, engineering, marketing, and other application areas. The contents of the book are valuable in extracting information from such multi-modal data.

There are 13 chapters and two appendices covering a range of topics, from methods of modeling, why mixture models are necessary, homoscedastic and heteroscedastic normal mixtures, spurious clusters, sampling design for classified data, parametric and nonparametric formulation of mixture models, basics of likelihood and decision theory approaches, maximum likelihood estimates and their (asymptotic) properties, expectation–maximization (EM) ideas, Aitken's stopping criterion, information matrices, a demonstration of multivariate normal mixtures for hemophilia data, arid consumer data on cat food, Bayesian approaches (including priors, Markov chain Monte Carlo methods, label switching algorithm, prior-feedback method, minimum message length, and others) to mixture modeling, generalized linear models (including Poisson, logistic hierarchical, latent class regressions), over-dispersion cases, count data with excessive zeroes, how to decide (based on moment, likelihood ration, bootstrapping, several information criteria, reversible jump method, Laplace approximations, normalized entropy among others) on the number of components to be in the mixture, multivariate t mixtures, mixture of factor analyzers, the so-called binning and truncated data modeling, mixture models for survival data, mixture models for directional data, several variations of EM algorithm for large databases, hidden Markov models, and software for finite mixture modeling. Just as the list is exhaustive, their presentation of the concepts and illustration of the results via examples are thorough and enjoyable.

I enjoyed (especially the chapters about the number of components in mixture models, hidden Markov models) reading this book. I recommend it highly to both mathematical and applied statisticians.

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