

Parameterizing mixture models with generalized moments

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Received: 23 September 2013 / Revised: 12 July 2014 / Published online: 15 October 2014
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Abstract This paper considers a new way of parameterizing mixture models where parameters are interpreted as the generalized moments of the mixing distribution. Following a dimensionality reduction approach, approximate models have a finite-dimensional parameter with a corresponding parameter space: a moment space. The geometry of the moment space is studied and we derive the properties of the reconstructed mixing distributions. Links between the reparameterization and estimation methods for mixture models are also briefly discussed.

Keywords Moments · Chebyshev system · Local mixture models · Functional principle component analysis