

Mixture of Probabilistic PCA under Variance Preservation

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Abstract

The idea of modelling data heterogeneity by a mixture of local models, and exploiting the correlation in the localized data subsets to reduce their subspace dimensionalities has been realized in many mixture models; like PCA mixture and FA mixture models. Instead of using fixed ad-hoc dimensionality for all subspaces, this paper proposes using a global preserved variance percentage value, to estimate the dimensionality that retains the given variability percentage in each subspace. We test the proposed method on classifying handwritten digit by a mixture of probabilistic PCA model, the result shows that the proposed method outperforms fixed dimensionality probabilistic PCA mixture model.

Keywords: *PCA, mixture model, EM algorithm.*