

# HANDWRITTEN DIGIT CLASSIFICATION USING MIXTURES OF FACTOR ANALYZERS

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## ABSTRACT

Gaussian Mixture model (MoG) is a flexible and powerful probabilistic modelling tool. MoG provides a simple framework for modelling data heterogeneity for classification and many other applications. One of the main MoG model training problems is that, it increases the number of estimated parameters by a  $k$  factor (where  $k$  is number of submodels in the mixture). Mixture of Factor Analysers (MFA) is a recently proposed MoG extension model, which succeeded in reducing the effect of this problem, by representing the covariance structure with less number of parameters. In this paper, we discuss and illustrate MFA model and apply it to handwritten digit classification problem.

**Key words:** Factor Analysis, Gaussians mixtures, Handwritten digit classification.