Abstract

Using the linear Gaussian latent variable model as a starting point we relax some of the constraints it imposes by deriving a nonparametric latent feature Gaussian variable model. This model introduces additional discrete latent variables to the original structure. The Bayesian nonparametric nature of this new model allows it to adapt complexity as more data is observed and project each data point onto a varying number of subspaces. The linear relationship between the continuous latent and observed variables make the proposed model straightforward to interpret, resembling a locally adaptive probabilistic PCA (A-PPCA). We propose two alternative Gibbs sampling procedures for inference in the new model and demonstrate its applicability on sensor data for passive health monitoring.