Warped Mixture Model

- An extension of GP-LVM, where $p(x)$ is a mixture of Gaussians.
- Or: An extension of iGMM, where mixture is warped.
- Given mixture assignments, likelihood has only two parts: GP-LVM and GMM

$$p(\mathbf{Y}|\mathbf{X},\mathbf{Z},\boldsymbol{\theta}) = \underbrace{(2\pi)^{-\frac{DN}{2}}|\mathbf{K}|^{-\frac{D}{2}}\exp\left(-\frac{1}{2}\mathrm{tr}(\mathbf{K}^{-1}\mathbf{Y}\mathbf{Y}^{\top})\right)}_{\text{GP-LVM Likelihood}}$$

$$\times \underbrace{\prod_{i}\sum_{c=1}^{\infty}\lambda_c\mathcal{N}(\mathbf{x}_i|\boldsymbol{\mu}_c,\mathbf{R}_c^{-1})I(\mathbf{x}_i\in\mathbf{Z}_c)}_{\text{Mixture of Gaussians Likelihood}}$$