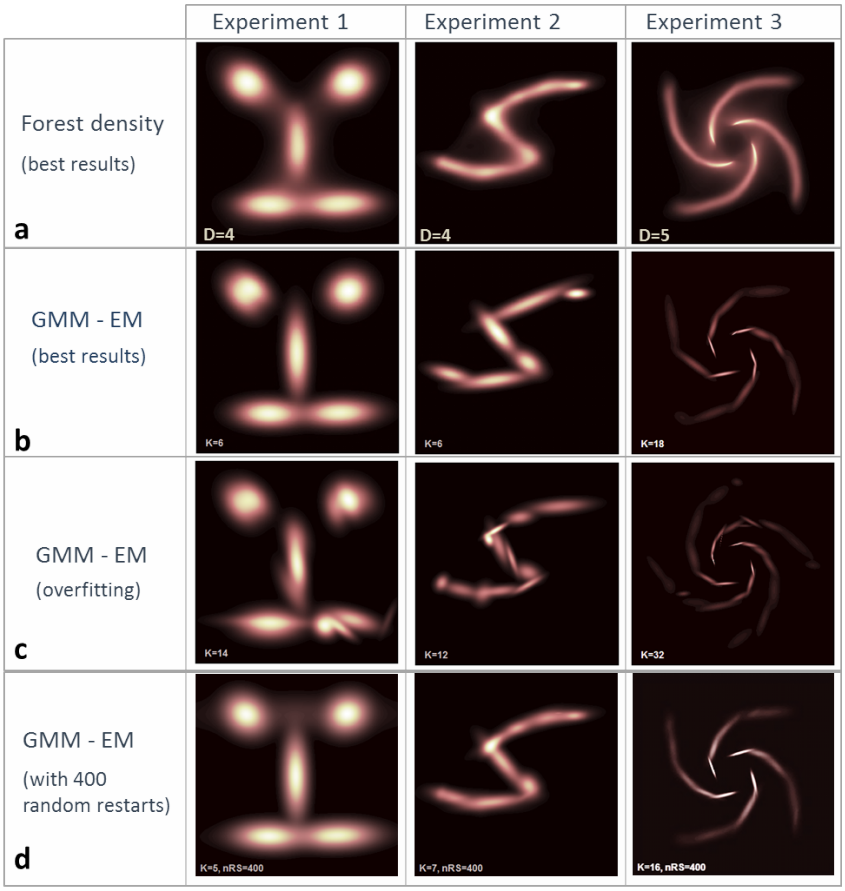

Fig. 5.8: **Comparison with GMM EM (a)** Forest-based densities. Forests were computed with $T = 200$ and optimized depth D. **(b)** GMM density with a relatively small number of Gaussian components. The model parameters are learned via EM. **(c)** GMM density with a larger number of Gaussian components. Increasing the components does not remove the blob-like artifacts. **(d)** GMM density with multiple (400) random re-initializations of EM. Adding randomness to the EM algorithm improves the smoothness of the output density considerably. The results in (a) are still visually smoother.

Comparing computational complexity. Given an input test point $\mathbf{v}$ evaluating $p(\mathbf{v})$ under a random-restart GMM model has cost

$$R \times T \times G, \tag{5.7}$$