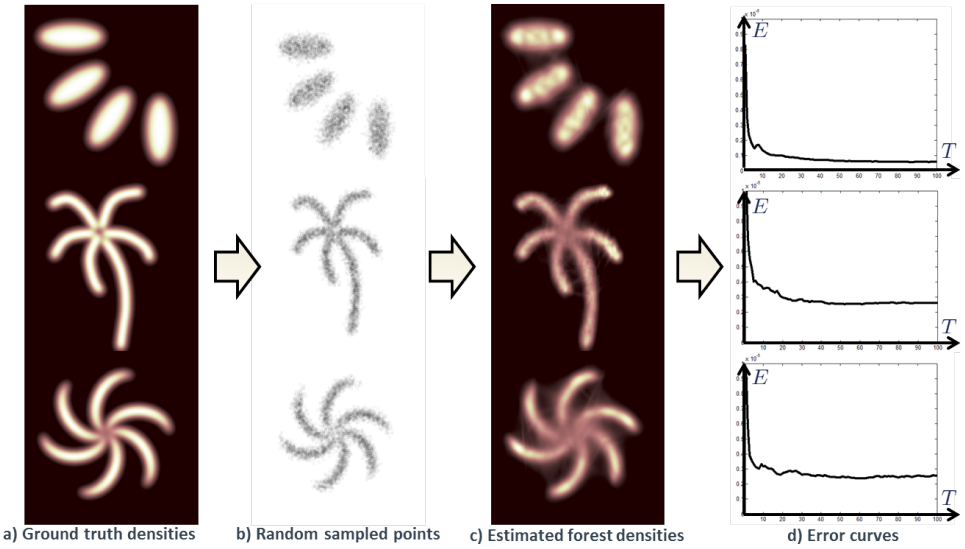


Fig. 5.18: **Quantitative evaluation, further results. (a)** Input ground-truth densities. **(b)** Thousands of points sampled randomly from the ground-truth densities. **(c)** Densities estimated by the forest. Density values are computed for all points in the domain (not just the training points). **(d)** Error curves as a function of the forest size $T$. As expected a larger forest yields better accuracy. These results are obtained with $T = 100$ and $D = 5$. Different parameter values and using richer weak learners may improve the accuracy in troublesome regions (*e.g.* at the centre of the spiral arms).

experiments we have observed the overall error to start increasing again after an optimal value of $D$ (suggesting overfitting).

Figure 5.18 shows further quantitative results on more complex examples. In the bottom two examples some difficulties arise in the central part (where the spiral arms converge). This causes larger errors. Using different weak learners (*e.g.* curved surfaces) may produce better results in those troublesome areas.

Density forests are the backbone of manifold learning and semi-supervised learning techniques, described next.