

We may use the GWT to model probability distributions in high dimensions that are essentially supported on unions of low-dimensional planes. We can then use this to generate new points. Here we take 2000 images of digit 7, and for any fixed j we learned a simple model by fitting a distribution in each $\mathbb{V}_{j,k}$. Left: draws from such a distribution ('GWT'), for $j = 6$ [1 min.]; draws from a model of comparable complexity in SVD space ('SVD') [0.3min.]; draws from a state-of-art Bayesian model ('MFA') [15 hrs.]. Right: as a function of the scale j , we compare draws from the model to a validation set by measuring the Hausdorff distance of point clouds; we also measure the variability in Hausdorff distance over multiple draws.