Given data X in the unit ball of R^N, not assuming any probability distribution structure, first compute intrinsic dimension locally and use this to split/partition points. From this, try to fit X with a multi-manifold.

Scale data to unit ball (note possible numerical issues if original data has extremely large scale)

Different notions of “locally like R^n” (95% SVD, or Gromov-Haussdorff a la Fefferman)

* Does Fefferman’s condition imply the SVD condition? How do they compare?