

SUMMARY OF "MANIFOLD FORESTS: CLOSING THE GAP ON DEEP NEURAL NETWORKS" BY Ronan Perry, Tyler M. Tomita, ...

PREMISE: Decision trees are amazing models when it comes to analyzing tabular data. However, it pales in performance next to neural networks when it comes to handling data that is structured (i.e. images, text, and speech). This paper proposes that the bootstrap samples of random forest can be selected in a manifold aware fashion [indices and structures taken into account]



RESULTS in training and test time that is lower than deep nets w/ comparable classification results

ALGORITHM:

- 1) at each node in DT, sets of random spatially contiguous features are randomly selected using knowledge of the underlying manifold
- 2) summing the intensities of the sampled features yields a set of projections which can then be evaluated to partition the observations

SUMMARY OF "SPARSE OBLIQUE RANDOM FORESTS" BY Tyler M. Tomita, James Browne, ...
PROJECTION

PREMISE: SPOF IS A METHOD THAT COMBINES THE EXPRESSIVE CAPACITY OF OBLIQUE ENSEMBLES WITH THE BENEFITS OF AXIS-ALIGNED ENSEMBLES

SPOF IS computationally competitive with leading implementations of decision tree ensembles