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Title:

"Global rates of convergence in scale mixtures

of uniform density estimation"

Abstract:

In this talk, we consider estimating a monotone decreasing density f_0 represented by a scale mixture of uniform densities. Pavlides and Wellner (2012) conjectured that the rates of convergence of the MLE would be $n^{-1/3}$ with a log factor whose power depends on d, but the proof has not been provided yet. We first derive a general bound on the hellinger accuracy of the MLE over convex classes. Using this bound with an entropy calculation, we provide a different proof for the convergence of the MLE for d=1. Then we consider a possible multidimensional extension. We can prove, for $d \geq 2$, that the rate is as conjectured by Pavlides and Wellner under the assumption that the density is bounded from above and below and supported on a compact region. We are exploring strategies for weakening the assumptions.