

Sparse and robust estimation for autoregressive models by penalized density power divergence minimization

Abstract

In this talk, I present a sparse coefficient estimation procedure for autoregressive models based on minimization of a penalized version of the density power divergence measure. We derive a penalized conditional weighted likelihood estimator which provides two simultaneous advantages: (i) robust estimation of the coefficients, and (ii) automatic selection of the relevant lags. We give conditions on the penalty function, under which our estimator is consistent and satisfies the oracle property. The method is studied through numerical simulations and is applied to real data sets.