Model selection for high dimensional correlation structure

by
Annie Qu
University of Illinois at Urbana Champaign
Champaign,
IL 61820, U.S.A.
anniequ@illinois.edu

Abstract

Model selection for correlation structure is a challenging problem since it involves a higher order of moments compared to model selection for covariates only. In addition, the high dimensional parameters involved in the correlation matrix could make the parameter estimation unreliable since the number of replicates could be smaller than the dimension of correlation parameters. In particular, if the correlation matrix has many zero or sparse entries, or if it is close to a singular matrix, the inverse could be unstable or likely be infeasible to calculate using standard software. We intend to capture the correlation information from the data, yet not be burdened by the the estimation of high dimension nuisance parameters which contain little information from the data. Numerical examples will be illustrated in the talk.