國立高雄大學統計學研究所
巨 量 資 料 研 究 中 心
聯合演講

Mixed-type Multivariate Bayesian Sparse Variable Selection with Shrinkage Priors

講者｜王紹宣教授（國立中央大學統計研究所）

時間｜**2025年4月30日(星期三)上午10:30-11:30**

地點｜**統計所多媒體教室(理學院 320室)**

茶會｜**上午10:00 於統計所辦公室(理學院 325室)**

摘要

We introduce a Bayesian framework for mixed-type multivariate regression using shrinkage priors. Our method enables joint analysis of mixed continuous and discrete outcomes and facilitates variable selection from the p covariates. Our model can be implemented with a Gibbs sampling algorithm where all conditional distributions are tractable, leading to a simple one-step estimation procedure. We derive the posterior contraction rate for the one-step estimator when p grows subexponentially with respect to sample size n. We further establish that subexponential growth is both necessary and sufficient for the one-step estimator to achieve posterior consistency. We then introduce a two-step variable selection approach that is suitable for large p. We prove that our two-step algorithm possesses the sure screening property. Moreover, our two-step estimator can provably achieve posterior contraction even when p grows exponentially in n, thus overcoming a limitation of the one-step estimator. We demonstrate the utility of our method through simulation studies and applications to real datasets.

Keywords: global-local shrinkage prior, mixed responses, multivariate regression, posterior contraction, ultra-high dimensionality.

近期演講內容: https://statsite.nuk.edu.tw/

高大交通資訊: https://statsite.nuk.edu.tw/p/412-1037-5044.php?Lang=zh-tw

（高大統計所）

敬請公告　　歡迎參加