2021년 제 12회 통계세미나

고려대학교 통계연구소와 BK21 통계학교육연구팀이 다음과 같이
공동으로 세미나를 개최하오니 많은 참여 바랍니다.

일시 : 2021년 11월 19일 (금) 오전 11시
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Bayesian nonparametric method for confounder selection

<Abstract>

In observational studies, confounder selection is a crucial task in estimation of causal effect of an exposure. Several approaches have been proposed to estimate causal effects in the setting of high-dimensional potential confounders; however, many of them do not accommodate complex structures among high-dimensional variables. In this work, we propose a Bayesian nonparametric approach to select confounders and estimate causal effects without assuming model structures for exposure and outcome variables. With the Bayesian additive regression trees (BART) method, the causal estimation model can flexibly capture complex data structure and select a subset of true confounders by specifying a common prior on the selection probabilities in both exposure and outcome models. The proposed model does not require a separate process to average effects across many models as, in our method, selection of confounders and estimation of causal effects based on the selected confounders are processed simultaneously within each MCMC iteration. A set of extensive simulation studies demonstrates that the proposed method performs well in many situations.

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